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ABSTRACT

A program for family life education is outlined in its various stages. The outline contains nine chapters: (1) Stages in Planning, (2) A Pattern for Planning, (3) Target Population and Preprogram Surveys, (4) Syllabus and Curriculum Design, (5) Teaching Methods, (6) Curriculum Development and the Preparation of Materials, (7) Recruitment and Training of Teachers, (8) Program Administration, and (9) Evaluation for Family Life Planning Education Projects. (CK)

Functional Education for Family Life Planning, II

Program Design

by David Harman

Second in a monograph series devoted to the integration of family planning education with literacy and nonformal adult education programs

a monograph of world education
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Preface

This book is not intended to be a how-to-do-it manual. It attempts to outline the various stages involved in program development as an indication of the scope of the task. If one were to analyze educational programs in general, one could discern most of these phases in one form or another in all endeavors, even though of course these will be manifested slightly differently in different country situations.

In many cases education has suffered due to a lack of systematic program development. In developing countries, where most of the adult functional education for family life planning programs will be undertaken, the almost universal paucity of resources underscores the need for a systematic and careful approach to program design and development. It is in this pursuit that I hope that this book will be useful.

David Harman
September 28, 1972

Foreword

Careful and comprehensive design is essential to a program in functional education for family life planning, and in our second monograph we discuss the ramifications of the process.

As we see it, program design is one of several tools necessary to create a program. Our first monograph, *A Program Plan*, describes World Education's overall program philosophy, experience, and methods. It is a disciplined effort to coordinate what we have learned from field activities so that our experience can be applied to future programs.

We have always worked towards understanding and clarifying the basic educational concepts that are the cornerstone of program development. For us, "functional education" became a more accurate term than "functional literacy" because we came to see that all the media—written, visual, and audio—are essential to the learning process. Similarly, as the worldwide need for family planning and population control became clear, we learned that if these subjects are to be incorporated into education programs they

must be related to other essential elements of family well-being (health, nutrition, income, etc.) and not treated separately. This added up to the term "functional education for family life planning."

Our activities have always been situation-specific. We recognize that every learning group is different and that therefore every pattern of activities must vary. This was true at the beginning, at Literacy House in India, and we have made sure that it has continued to be true as we expand our activities to projects in other parts of Asia, Africa, and Latin America. We believe that this insures the greatest possible benefit for the learner, and it also keeps the realities of each situation visible to us.

We now know enough about the process of developing programs for functional education for family life planning to realize that the design of the program is both crucial and difficult. Its vital sinews must be built into every program: thorough advance planning, the identifying and establishing of targets, syllabus and curriculum development, materials preparation, the recruiting and training of teachers, and ongoing evaluation.

David Harman is unusually--indeed uniquely—qualified to write of this process. As a World Education consultant, he helped design the Thai Ministry of Education's program in functional education for family life planning. He was a resource participant in the Bangkok Consultation on adult literacy education and family life planning, a workshop sponsored by World Education in 1971, and was a resource leader at the East-West Center's workshop for population education program development specialists held at the University of Hawaii during the summer of 1972. Dr. Harman is a lecturer in educational planning and Director of the School for Pre-Academic Studies at the Hebrew University of Jerusalem. Formerly he was an associate in education at the Harvard

Graduate School of Education's Center for Studies in Education and Development and a tutor at Radcliffe College.

Having said how essential the design structure is, we want to emphasize that the design presented in this monograph must not be considered final. As Dr. Harman points out in his preface, it is to be used as a guideline and not as a book of rules and regulations. Program design, like every other part of educational planning, must remain flexible if it is to meet the changing and diverse needs of people everywhere. All kinds of nonschool and nonformal educational programs are emerging in every part of the world. World Education expects to be on the cutting edge of the experimentation that is taking place. We hope that this volume will contribute to the planning process.

Thomas B. Keehn
President
World Education

November 16, 1972

I. Stages in Planning

Setting up any educational endeavor requires careful planning, and many efforts have faltered due to a lack of it. Systematic and meticulous planning becomes all the more important in educational programs that are innovative or depart from the norm. One such case is that of adult functional education programs incorporating family life planning as a main objective. The newness of the undertaking with all that this implies—lack of tested methodologies and approaches, dearth of materials and aids, lack of structural models, and uncertainty regarding the ratio between costs and benefits—requires of the program initiator an added planning effort.

Systematic program planning is not, of course, an answer to all problems that might arise. It merely helps the program director to arrive at decisions by providing an orderly framework for viewing all the variables and alternatives that present themselves. If program sponsors adhere to a planning model, they will find it a most useful tool. Systematic planning can be valuable both to

establish more effective and appropriate programs and to indicate possible pitfalls so that they may be avoided.

Educational planning, as a relatively new aspect of the educational sciences, has so far been developing at a national systems level. Only recently have many of its principles been applied to individual programs. Many of the stages and procedures that will be described and discussed in the following pages are applicable to most educational programs. The main focus of this monograph, however, is on program planning and development as it relates to adult functional education programs with specified family planning objectives.

Planning is a process that should accompany an educational venture from its inception. As soon as a decision has been made to undertake a program, the planning machinery gets into motion. In this chapter the various stages of the planning process will be delineated.

Setting Program Objectives

A decision to embark upon an educational project is often confused with the setting of program objectives. These are, however, two distinctly different operations. The latter derives from the former. The initial decision usually incorporates no more than a statement of intent and, in some cases, basic guidelines of assistance in setting specific objectives. Thus, for example, a government's decision to undertake an adult education program aimed at family life planning education tells one nothing of the specifics of the desired program or of its objectives. It is the task of the program planner to translate the initial decision into a series of clearly stated objectives.

Objectives are basically policy statements that define a program's tasks and targets. Therefore, they must incorporate all

aspects of a program and not only specify the final desired results. There are several different levels of objective-setting. First, the target or goal of a program must be detailed. What is the objective of the particular adult functional education for family life planning program in question? Is it to disseminate information about family planning techniques? To convince people to utilize such techniques? To persuade them to visit family planning clinics? To inform them of other aspects of family life planning such as child-rearing and nutrition? The exact determination of a program's objectives is a precondition to any subsequent plan of action. Its importance also lies in another realm; objective-setting at this level serves to set forth expectations from a program. The following example illustrates this:

> The government of a country decides that as part of its population policies it will inaugurate an adult education effort in family planning. Since the objective of the population policy is to reduce the fertility rate, it is assumed that the adult education program will contribute in some way to attaining that objective. Up to this point, objective-setting is at the level of stating intentions.

In analyzing the objective-setting process that has occurred at the level described, one finds that a significant broad implication is made by the government's decision to undertake a program—it is implied that an educational undertaking can contribute to achieving the broader policy of a reduction in family size. Nowhere, however, is it stated in what way education can make this contribution. It becomes necessary, therefore, to amplify this point.

Broadly speaking, education can have two distinctly separate but possibly related roles. On the one hand, it can serve as a vehicle for the transmission of information, or transferring knowledge. On the other hand, education can serve as a means for

inducing behavior change. The induction of behaviorial change implies much more than the mere transfer of a set of facts. The facts need be internalized, fully understood, and then acted upon. In illustration let us examine two possible ways of translating the basic policy decision cited above.

A. The government, as part of its population policies, has inaugurated a series of family planning clinics operated by the national health authorities. It wants to use the educational program to motivate adults to visit these clinics so that they will be introduced to the various contraceptive techniques by competent personnel.

B. The government, as a part of its general policy, intends to make available a wide variety of contraceptive devices which it hopes people will be induced to use. The educational component of the policy is intended both to instruct adults in the use of the contraceptives and to motivate them to adopt the contraceptives.

In the first case the role of the adult education program is largely motivational. The only information to be transmitted is where the family planning clinic is located and what it can do. The success of the program can be measured by counting the number of people who visit the clinics as a result of the program. The behavioral objective is to get people to visit the clinics.

In the second case the role of education is more complex. While it can still be seen as having a motivational and informational task, it differs from the first example in that its success can be measured by counting the number of people who use contraceptives. Therefore, in a sense, the educational program must also perform the role that the clinics undertake in the first example. Not only will the subject matter in the programs resulting from these policy decisions differ, but so, too, will the instructional techniques and materials.

The term "behavioral objective" was used above. This is one type of objective that needs to be set. It is set by answering the question, "What behavior do we want to see in the program participants following their educational experience?" The desired behavior should be spelled out explicitly and in detail.

A further level of objective-setting remains: the operational level. At this level, after targets and behavioral objectives have been set, the operational dimensions of the target population and the time element must be determined.

Since target population variables will be discussed in detail below, it is sufficient at this point to state that objectives must be set with a clear idea of whom the program is intended to reach. The basic policy decision has determined only that the target population be adult. Who the adults are, however, is not specified and needs clarification.

Family planning policy is generally set with a time factor in mind—reduction or correction of the rate of population growth at a given point in time. Indeed, it stands to reason that the root cause of the initial adoption of the policy is dissatisfaction with the existing population growth rates. Time, therefore, is important, and the educational programs incorporated in the policy must also conform to a set notion of time. A determination of time boundaries as an objective will aid the program planner in designing his actual project.

Program costs are also an important variable. Overall budgets are usually predetermined, and the program planner has little leeway to affect basic decisions. However, the allocation of the available funds within a program is of major significance and should be dealt with at the objective-setting phase. For example, an objective might be that a program is geared for only X dollars to be spent on each participant.

The task of the program planner at the objective-setting stage, then, is to make a series of fundamental decisions regarding the

various elements involved in the organization of a program. Each of these decisions sets forth the boundaries within which the program eventually will be conducted. Together these decisions serve as basic reference points from which other elements of the program can be developed.

The Determination of Target Populations

Carefully identifying the target population of a program is of the utmost importance. Many programs in the past have faltered largely because program organizers were not clear about whom they hoped to reach and were insufficiently acquainted with the potential participants. As a result, the programs that were designed proved to be unsuitable.

A program aimed at adults must be explicit as to who those adults are before getting off the ground. A rural illiterate population in a developing country is an entirely different group with different needs from an urban literate population or even an urban illiterate population. Similarly, a target population of married adults between the ages of thirty and thirty-five with children is not the same from an educational point of view as either teenagers or young married couples contemplating their first child. Each of these groups would require a different program. If a target group contains several of these subgroups, several different programs may be called for.

The determination of target groups is a complex process. It can be somewhat simplified if viewed as an exercise in stratification. Stratifying a population in this context means to identify subgroups within an overall population according to predetermined criteria. Such criteria could be, for instance, rural or urban residence, occupation, prior education, age, marital status, and sex.

Geographic location and occupational structure of the target population are factors of major importance. If, in a given country, the major population problem exists in rural areas, it stands to reason that the programs should be aimed there. However, the core of the population problem may be in urban areas, in which case they would be the prime target. Similarly, and largely a function of geographical location, identification of the target group by occupation is important. Clearly, if a target group is composed of farmers living in small village communities the resulting program would not be the same as for a group employed in industry and residing in or having constant contact with urban centers.

Prior education, too, is a significant factor. Both the methodology of the program and the nature of the materials will be influenced by an analysis of this aspect of the target population.

Age, marital status, and sex can be viewed as complementary factors. A basic decision must be made early in the planning process as to whether the program will concentrate its efforts upon young people between the ages of fifteen and twenty who are likely to be not yet married, young married couples, or older married couples. In a program designed to change behavior in family planning practice, one would assume that adults beyond child-bearing age would not be included in the target group. Excluding them may, however, be an error, since the older adults might act as formers of public opinion for the entire society. Hence, exclusion of this segment of the population may result in their negating any potential effects of the program. Thus, one factor that must be accounted for in an analysis of age structures is that of opinion leaders—those who exert influence on the formation of opinions and behavior in a community.

In certain situations it may be beneficial to concentrate on either men or women. Determination of this aspect of the target

group is deeply bound with the particular culture and traditions of each society. Whatever the decision may be, it will greatly affect the design of the actual program.

With the determination of population groups the objective-setting stage is completed. The program planner now has a clear idea of the parameters with which he is to work and of the specific tasks his program is to achieve. In the next phase of planning he will use the objectives as points of reference on which decisions regarding operational aspects of the venture will be based. Without first stating the objectives, it would be difficult for the planner to establish a clearly specified set of activities. The objectives also serve as a reference point for evaluation and therefore accompany the program throughout its existence.

By the end of this phase the planner also has a clear notion of the behavioral objectives that his program should achieve, an indication of the group the program is to address, and some idea about the duration of the program and the allocation of costs.

Mapping Operational Activities

Armed with his clearly delineated objectives, the planner can turn his attention confidently to the next planning phases: those of designing the specifics of the program and implementing this design. These phases are the operational aspects of the program in that they develop the objectives into a coherent educational plan. At the initial stage this aspect of program development consists of the determination of the procedures of the program and the methods to be employed.

There is more than one way in which a program of adult functional education for family life planning can be conducted. There are not only several teaching methods that can be used, but also several organizational models. Each of these approaches undoubtedly has merits and should be explored so that an ideal

plan of action can be adopted. Hence, before adopting a final operational plan a planner would be well advised to chart out all the possibilities.

In broad terms, an educational endeavor consists of separate factors:

1. Teaching methods
2. Teachers and program staff
3. Physical facilities
4. Organizational structure

In each of these areas a wide range of experience has accumulated and the planner can find several alternative ways of conducting his program. He is not restricted to previously tested approaches, however, but can decide that a new approach may be more valid for his particular situation. In any case, a wiser choice will be made if the planner weighs the pros and cons of each approach and method.

Operational decisions cannot be made in the abstract. They require that the planner have before him different types of data, some of which he may have to collect in the field. Before he can decide about curriculum or teaching methods, for instance, he must have assembled thorough information about the target population. Before he can decide where the program is to be carried out or when it should be conducted, he must know what physical facilities are available and when they are available; in addition, he needs information regarding the work habits of the target group. Decisions as to what type of data and information need to be assembled and what questions need to be asked will emanate from this stage in the planning process.

In illustration let us recall the program launched by the hypothetical government mentioned earlier. The objectives have been set, and the planner has a clear idea of the boundaries of the program. His next set of activities may be something like this:

1. The planner identifies possible teaching methods:
   a. An "each-one-teach-one" tutorial system
   b. Classroom instruction using discussion
   c. Frontal classroom instruction
   d. A broadcasted program using the state radio
   e. A community-development fundamental education approach
2. Similarly, he identifies several possible sources of personnel:
   a. Volunteers
   b. Primary-school teachers
   c. Special adult teachers
3. The planner then lists various alternatives for the physical facilities of a program:
   a. Primary-school classrooms
   b. Religious institutions
   c. Public halls
   d. Private homes
4. Finally, the planner identifies various possible organizational structures:
   a. An intensive campaign
   b. A lengthy, spread-out program
   c. A nonformal program

Each of the possibilities needs to be detailed so that the implications of each are clear. The planner can then peruse this map of alternatives and arrive at some basic conclusions. If he does not, for instance, believe in the efficacy of the first instructional methodology he listed, he can decide not to use it. On the other hand, he may wish to leave all options open and make his final decision only after he has further information. This listing helps the planner determine what types of information he needs before

he can arrive at final decisions. He may want first to conduct a series of surveys.

The primary objective of this mapping stage, then, is to chart all the possible paths a program can take. In addition, this exercise can indicate where additional road signs, or data, are required. This phase of the planning process is the essential first step in determining ultimate program strategy.

Budgetary Considerations at the Planning Stage

The budget, or rather the lack of budget, is typically a thorn in the side of any educator. Educational administrators at all levels must conform to limitations dictated by financial restrictions.

There are two principal ways of approaching budgetary considerations at the planning stage. On the one hand, the planner can simply work within the limitations imposed by the allocated budgetary resources. The alternative, which is more involved, is to cost out an optimal program plan as if there were no budgetary constraints. After completion of this exercise the actual budget available is compared with the optimal budget, and appropriate cuts are made in each of the sectors for which money is allocated. This process is lengthier and more difficult but in the long run may enable the planner to arrive at better decisions about how to spend the funds he has.

He may well conclude that the proposed budget is totally inadequate for its intended task—not an unusual conclusion. Consequently, he may attempt to seek additional funds from other sources. For this purpose it would be valuable to identify possible funding sources.

The planner of a program has been informed that he has at his disposal $100,000. With that sum he is to plan a project for two regions of his country, with approximately 10,000 participants in each. Using the the first approach, he determines that he must not spend more than $5 per participant. Three dollars are allocated to materials and one dollar each for teachers' salaries and space rental. He is chagrined to discover no funds are left for evaluation, teacher training, supervision, or the preparation of additional materials. Furthermore, calculations of salaries based on estimated class size show that a minimum of $3.00 is needed per student for teaching costs.

The planner then tries computing costs of the program with all items fully budgeted. This exercise shows that an additional $80,000 is needed to run the program. At the same time he also identifies several agencies that can be approached for financial support. Two of these agree to participate in the program: one is willing to provide paper and printing costs for the materials ($60,000); another is willing to provide a grant for space rental ($20,000). The resultant budget saving leaves the planner with $4 per participant unallocated. Consequently, he is able to increase the salaries, to allocate a certain sum for supervision and additional materials, and even to appropriate money for evaluation.

One approach to conducting an analysis of budgetary considerations at the planning stage is that of the Gross Financial Matrix. In this approach a matrix is constructed in which projected expenses are placed against possible funding sources. Such a matrix might look like this (again, the items listed are hypothetical, for purposes of illustration):

Source / Expense	Loans			Grants			Taxes			Bonds			Tuition	TOTAL
	a	b	c	a	b	c	a	b	c	a	b	c		
Teacher Salaries														
Administration														
Construction														
Instructional Materials														
Depreciation														
Maintenance														
TOTAL														

Prior policy decisions will, in many cases, serve as guidelines in the consideration of budgets. A typical situation is one in which the number of participants in a program has been predetermined. The planner thus finds that he must stretch his budget to cover this number. Often, as a result, compromises are made for items such as teachers' salaries, quality and quantity of instructional materials, and type of facility. Evaluation is the most frequently deleted item. Cuts in these items mean that the potential success of a program is severely compromised. By budgeting a program as if the finances were open ended, the damages resulting from some budget cuts may be avoided.

There is, of course, one other approach to program budgets, one that can be labeled the "happy-go-lucky" approach. Here, budgetary constraints are not taken into account, and the program is launched independently of financial restrictions. At some point, of

course, funds will run dry. The fact that a program is already in motion has occasionally been used successfully as an argument to extend funding. However, if additional funds are not forthcoming, the program is forced out of existence with possibly disastrous effects. This "antiplanning" approach is certainly not recommended. Programs optimally should be budgeted and all possible financial contingencies taken into account before actual instruction begins.

Identification of Constraints

The size of the budget allocated to a specific program is, as one of the given factors, definitely a constraint. It is one of the factors that can work against success. Budget restrictions, however, are not the only constraints with which a program must contend. One of the planner's tasks is to identify all possible constraints prior to putting his program into operation so that he may avoid pitfalls.

Constraints are usually numerous and emanate from many sources. One type is imposed by the specific policies of governments. Program planners must conform to prespecified policy decisions and directives. Budget officials may be willing to fund one type of activity but not another, regardless of the wishes of the planner. Political constraints may be present, so that if certain activities are considered not propitious politically they may have to be avoided. Cultural constraints of varying types will almost always be present. Some forms of content may be unacceptable. Traditions, work habits, seasonal considerations, bureaucracies, and individual personalities are all frequent sources of constraints.

Although a particular plan may seem to be ideally suited for a particular program, it may well be doomed to failure because not enough attention was paid to the constraints.

The planner in the hypothetical situation we have been following has embarked upon a charting of constraints to the program. First he lists the various areas that can be affected by the constraints. He comes up with the following four headings:

1. Administration
2. Content and curriculum
3. Teachers
4. Time schedules

Under the first heading he lists a number of constraints: inadequate budget, small staff, and lack of physical structures for the program. Under the second he details certain characteristics of the population that would limit the scope of some of the material. Similarly, he finds that only male teachers are acceptable and notes that. Finally, he determines what times would be best suited for the conduct of classes. While doing this the planner discovers that he is lacking in some information and decides that he will have to collect it before he can determine each of the constraints specifically.

Constraints should not only be identified; they should also be classified according to the particular aspect of the program that they affect. It is a tedious but valuable exercise to list the constraints in a chart similar to that used in looking at the budget. The planner uses the matrix to correlate each constraint with the various aspects of a program, and to record the possible influence of the contraint upon each aspect. As in the case of the budget, this matrix may help the planner avoid judgmental errors in charting the specifics of his program.

Setting a Timetable

Timetables or schedules are often considered cumbersome frills invented to foster confusion rather than order. Such, in fact, is not

the case. Properly constructed schedules are extremely useful guidelines.

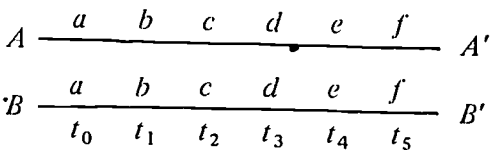
There are two dimensions to timetable-setting. The first is an orderly listing of the activities involved in organizing and maintaining the program, and attaching a time element to each factor in the process so as to arrive at an indication of tasks to be performed at given time intervals. Some activities can occur only after others are completed. Instruction cannot proceed before teachers are trained, and teachers cannot be trained before training materials have been prepared. This aspect of timetable construction thus introduces some order into the multitude of activities that have to be undertaken, so that the actual program can run smoothly. After it has been constructed and time limitations imposed on each of the activities, the schedule becomes a controlling mechanism whereby program administrators can check the fluidity of the various activities. If necessary, the timetable also becomes a tool for revising program schedules. A possible instance of this utilization of a timetable could be the following:

> Ten months were allocated in a particular program to the preparation of materials. For various reasons, these ten months stretched out to a full year. The program administrator adjusted his timetables accordingly and delayed recruiting teachers by two months. However, in trying to adjust the calendar he discovered that due to the two-month delay the program would have to begin its teaching activities during the harvesting season. Knowing that farmers would not be likely to attend classes during harvest, he decided to delay the entire post-material-preparation phases of the program by five months rather than two.

Without the program schedule, many things could have gone wrong. Teachers might have been recruited and brought to a training seminar before the materials were available, and the

seminar would have been less effective. If the program had been postponed only two months instead of five, classes would have begun without any students. This example, incidentally, also shows the value of identifying constraints. Clearly, in this example, the harvest season was a constraint on the program.

The second aspect of timetable-setting relates to the program's objectives. Each program, as seen earlier, has clearly defined goals. The planner may find it useful to break down the long-range objectives into midrange and short-range ones. This way he will find it easier to plan for specific activities. The most commonly used approach quantifies the objectives and superimposes the quantified results on a time span. Graphically, this process looks like this:



where:

A = an objective
A' = the envisioned end result
B = an objective
B' = the envisioned end result
Aa-Af = intermediate objectives of A
Ba-Bf = intermediate objectives of B
t_0 = the starting point of a program
t_1-t_5 = intermediate time points during a program

Let us assume that Objective A is to make people functionally literate and Objective B is to reduce the fertility rate. Accordingly, the midrange objectives might be:

Aa = identification of letters of the alphabet
Ab = ability to read one-syllable words

Ac = completion of first level (second-grade equivalent)
Ad = completion of first reader
Ae = attainment of fourth-grade reading level
Af = completion of second reader
A' = attainment of functional literacy

Similarly:

Ba = understanding of the importance of family planning (population education)
Bb = understanding of the possibility of limiting family size
Bc = understanding of the concept of "spacing" children
Bd = visiting a family planning clinic
Be = adopting a contraceptive
B' = reduction of fertility rate

Each of these midrange objectives would then be superimposed on a time factor in such a way that:

t_0 = the starting point
t_1 = the second month
t_2 = the fourth month
t_3 = the sixth month
t_4 = the eighth month
t_5 = the tenth month
t_6 = one year

Objectives A and B are detailed in terms of the desired end results (A' and B') and then subdivided into a series of smaller, intermediate targets or objectives (Aa-Af and Ba-Bf) and given time allocations (t_1-t_5) beginning with the program's starting point (t_0). By following such a timetable, program planners know that during a specific period of time they need to lay emphasis only upon the attainment of the intermediate target. If they adhere to the design, they will eventually build up to the desired result through a series of smaller, contained efforts.

As in the previous planning phases, the setting of timetables conceptually makes a framework within which to function more efficiently.

Staffing

The size and character of the staff will be determined by such factors as the number of participants, the budget, and the average class size. The staff does not need to be recruited and set to work all at the same time. Planning for staff is an ongoing process that starts at the beginning of program planning.

Basically, the personnel necessary for an adult educational program consists of two categories: instructional and supporting. With the instructional personnel there are several subcategories: teachers, teacher supervisors, and teacher trainers. In some cases the teacher trainers also act as supervisors. Similarly, there are a number of subcategories of supporting personnel: administrators at various levels, materials production personnel, and curriculum developers. The last two of these subcategories are also often combined.

Supporting staff usually begins first and is the first to be recruited. It may be necessary to plan for personnel according to a matrix of ratios such that, for example, there is a certain number of supervisors and teacher trainers per certain number of teachers.

A useful formula for the consideration of staffing needs is the following:

$S: T_4a + T_3b + T_2c + T_1d$

where:

S = number of students
T_4a = number of classroom teachers
T_3b = number of supervisors
T_2c = number of teacher trainers
T_1d = curriculum developers and materials production staff

For example, assume that in a particular program there are 20,000 participants and it is determined that classes of ten participants each be formed. One supervisor is appointed for every 50 teachers and one trainer for every 100 teachers. At the same ratio, 10 curriculum developers and materials production personnel are required. The formula would look like this:

$$20{,}000S: 2000T_4a + 40T_3b + 20T_2c + 10T_1d$$

The numbers following the T's suggest the ratio and the small letters indicate the function.

Accordingly, a certain number of teachers (T_4a) are required to teach a given number of participants (S). These teachers, in turn, require a certain number of master teachers of two types: supervisors and teacher trainers (T_3b and T_2c). In addition, each program needs a certain number of personnel whose concern is the development of curriculum and the production of program materials (T_1d).

The numbers following the various T's suggest that there is a diminishing order of magnitude. Fewer teacher trainers are required than classroom teachers, and fewer curriculum developers than either supervisors or teacher trainers. The letters following the numbers suggest the order in which staff requirements can be calculated, so that the determination of b is based upon a, and so forth.

It is possible to construct a similar formula for administrative personnel:

$$G + S: A_3a + A_2b + A_1c$$

where:

G = geographic spread
S = number of students
A_3a = number of local administrators
A_2b = number of regional administrators
A_1c = number of national administrators

Having determined the size of the staff needed and a timetable for employment, it is possible to turn to recruitment and training. Staff qualifications must also be settled. Obviously, a teacher will need a different set of qualifications from a supervisor or a teacher trainer.

Staffing questions must be considered at an early stage. Later on it becomes more difficult to revise plans. It may be an error, for instance, to assume that teachers are readily available. A fairly accurate determination of the type and number of teachers who will be working in the program is basic to curriculum and materials development and program organization.

> In a certain country it was decided that the teachers for a program must be good adult instructors first and foremost. This was deemed more important than expertise in family planning. Accordingly, it was decided that the supervisors should have a stronger background in matters pertaining to family planning education. The personnel available for teaching proved to be mostly primary-school teachers. Two conclusions were drawn: first, classes would have to be conducted in the afternoons and evenings; and second, the training sessions for teachers would have to stress family planning content. Furthermore, the materials prepared for participants would have to be accompanied by special teachers' manuals that would provide the necessary information on family planning in order to compensate for the teachers' lack of background.

This example points out the importance of determination of staffing. Not only are the numbers of required staff important but also the qualifications, since the qualifications of one group may determine the qualifications of another group. Staffing is thus an essential aspect of the planning process.

Assistance From Other Agencies

A program of adult functional education for family life planning is one that touches on many aspects of the human condition. While the program itself is a purely educational undertaking, the subject matter involves elements such as health, agriculture, and conceivably even housing. Most governments have specified agencies that deal with these areas, and it is important to seek coordination with them from the very beginning. Health officials should be consulted about the content of the curriculum. Agricultural agencies may be able to place in the hands of the planner resources such as personnel—extension workers, for instance—and may also have significant inputs to the curriculum.

The desirability of coordination with the agencies involved in areas that the program touches cannot be overstressed. The program may fail unless it has the active cooperation of all concerned.

The subject of coordination with bodies other than those directly concerned is mentioned at this point since the planner would be well advised to seek such cooperation at an early stage. Asking support and assistance from other agencies later in a program is more difficult. People may resist becoming involved with a program in which they were not participants during the initial stages. Each country and situation differs in respect to the agencies that would be concerned, but the planner must seek out those who can help and involve them in his labors according to the constraints and characteristics of the particular situation.

All the stages sketched above are preparatory. They provide the program with a framework and a mode of operation. Only rarely will one individual be responsible for each of these decisions and steps. Indeed, many different people may be involved. These are planning stages for a program and are recommended to those responsible for conducting programs as steps they can adopt. They are suggestive, not prescriptive. Each of these stages is, however, designed to facilitate the outcome of a program.

II. A Pattern for Planning

The variable factors that affect a program can be endless. It is easy to get bogged down trying to identify all of them and order them in some manageable fashion. The object of this chapter is to present a pattern or model that attempts to do so. The model presented on page 25 is flexible. Any of the variables could be exchanged for others more appropriate to a specific situation. This chapter is concerned only with nature of the model and its basic concepts.

It is possible to group the numerous variables under a number of broad headings that do not attempt to be exhaustive but do indicate the most significant components. This model is a graphic device designed to assist the planner to list a series of factors, describing them as they actually exist in the ongoing educational system, and then to compare them with each of the same as he envisions them in his intended program. This exercise makes it easier for the planner to decide on the necessary adjustments and thus leads to the creation of a workable program plan. The model itself is merely a tool intended to organize the various factors systematically and to indicate their correlation.

There are two main categories of inputs into a program of adult functional education for family life planning. First and foremost is the clientele—the target population. This input is a given factor and the planner must define it as accurately as possible.

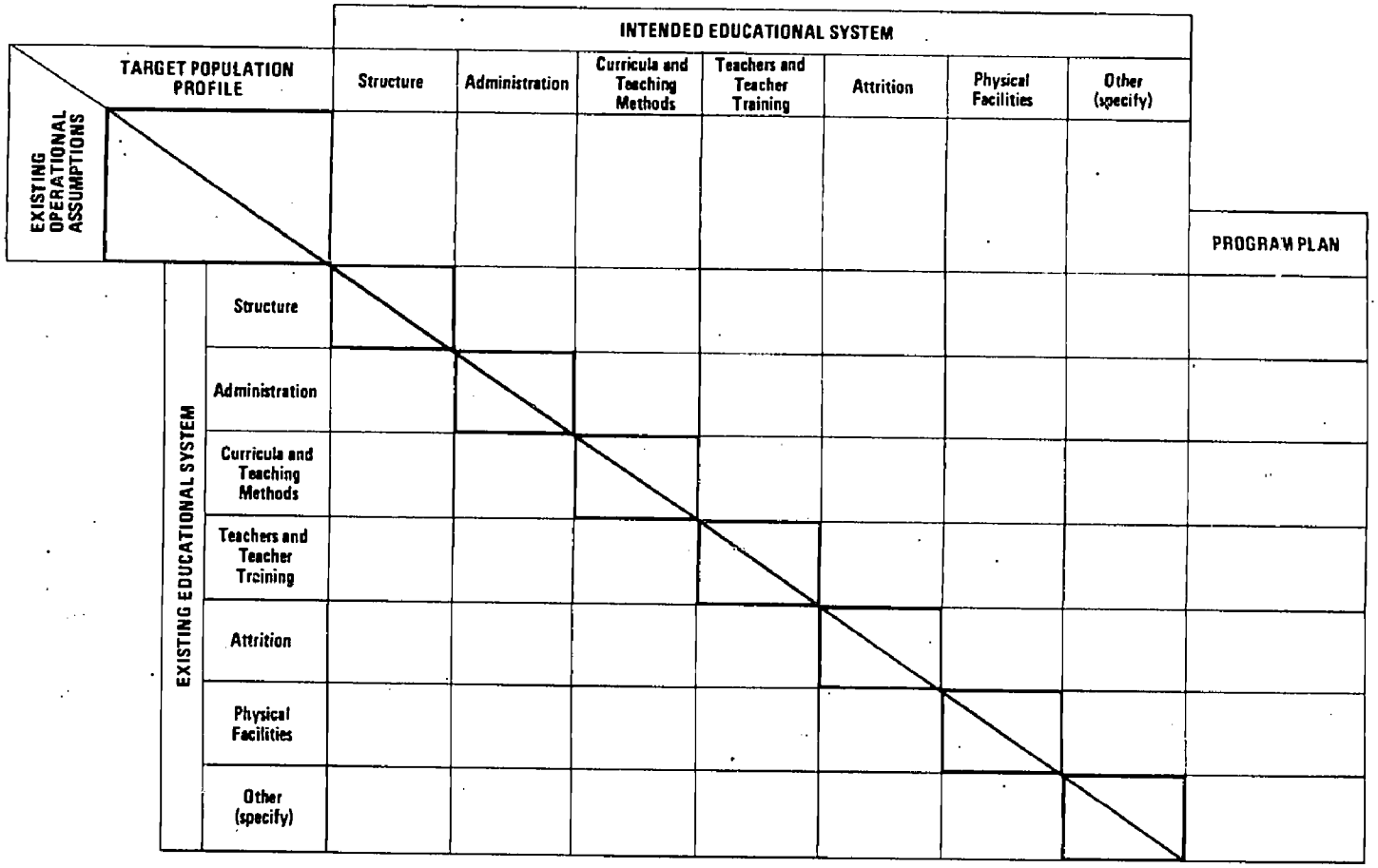
The second category of inputs is the sum total of all other program inputs that are intended to service the target group. These are diverse and many but consist in the main of curricula, teachers, facilities, materials, administration, and finances. Unlike the target population, which is a constant factor, these variables can be controlled, to a degree, by the planner. In effect using the model is an exercise in the design and control of each of these variables.

As stated earlier, both the target population and the second set of factors are inputs into a program. Clearly, it is only through the control of inputs that a planner can have an impact on the outputs. Desired outputs can be, and indeed should be, determined; however, the program will be relevant, efficient, and effective only insofar as it is anchored in a properly conducted analysis of the essential input factors.

The model is presented here in the broadest terms possible so that it will be applicable to a wide range of situations. If the planner wants to make practical use of the model, he should enlarge it on a sizable piece of poster paper, so that he will have space to list the various factors in the appropriate place.

Step One : Target Population Data

The first step in using this model is to gather data about the target population and list it in the large triangle above the diagonal in the upper left-hand corner of the diagram. In the large triangle below the diagonal, the planner should place the assumptions about the target population under which the existing system has been operating. Ideally, the data in these two opposing triangles


INTENDED EDUCATIONAL SYSTEM
TARGET POPULATION PROFILE
EXISTING OPERATIONAL ASSUMPTIONS
Structure
Administration
Curricula and Teaching Methods
Teachers and Teacher Training
Attrition
Physical Facilities
Other (specify)
PROGRAM PLAN
EXISTING EDUCATIONAL SYSTEM
Structure
Administration
Curricula and Teaching Methods
Teachers and Teacher Training
Attrition
Physical Facilities
Other (specify)

would be identical. In practice, however, this is rarely, if ever, the case. Almost always the existing system has been functioning on false or incomplete assumptions about its target population.

Step Two : Program Data

The planner next proceeds to fill in all the other triangles along the diagonal. In the upper triangles he outlines the ideal system. In the lower triangles he describes the actual system as it is currently operating. These upper triangles, therefore, call for the value judgments of the planner. What type of structure does he deem most desirable in a program of functional education for family life planning for the given target population? What form of administration? What curricula? Who would make the best teachers and how should they be trained? What attrition rate is he aiming for? What would be the ideal physical set-up in which to conduct such a program? There may be other factors to consider, and there is a place on the model (marked "other") for him to specify these. When he is finished, the program planner will have a picture of his ideal system outlined in the upper triangles above the diagonal line.

Then he turns his attention to the existing system. He examines each of these input factors as they actually exist in the current educational system and describes them briefly in the triangles below the diagonal.

By comparing the triangles above the diagonal with those below the diagonal, any disparity between the ideal system and the existing system will be apparent. In most instances, there will be deficiencies in the existing system. The planner must reconcile these differences as nearly as possible. From here on in his planning, the program planner will have before him these two

pictures: a profile of his target population and a graphic juxtaposition of the ideal system against the existing system.

Step Three: Correlating Program with Target Population

The third step is to examine the effect of the target population and each of the variable factors on every other input into the educational system. This analysis should be done from three different points of view and will necessitate having three more copies of the model diagram. The first should be headed "Descriptive Analysis," the second "Budget Analysis," and the third "Constraints Analysis." In each, the profile of the target population remains as it was found to be for Step I. The information in the lower triangles is also constant.

In each of these analyses the objective, and therefore the approach, is slightly different. The descriptive analysis presents an overview of the system; it analyzes in a general way the various components and the way in which these fit together. The budget analysis is much more precise and must show accurate costing of each of the elements presented. In the third analysis, the planner identifies the constraints that might force him to modify the ideal picture. (He can also use the model for current program evaluation at this stage by comparing stated objectives of the system with actual attainments.)

In each of these analyses the planner must make value judgments, and these are very often as sound a base as one has for arriving at operational decisions. Obviously the more educated such judgments are, the more effective the ultimate decisions will be. In an ideal situation, the entries into the two levels of triangles—upper and lower—will be identical. This, alas, is rarely if ever the case. Use of the model enables the planner to order the

variables, juxtapose them each against the others, and arrive at a complete picture.

Step Four: Operational Decisions

The fourth and last step requires operational decisions. The use of the model will give the planner a better grasp of the system with its various assumptions and inputs and of his own ideal notions in order to reconcile these into a coherent plan of action.

In this stage the last column, labeled "Program Plan," is utilized. All the other cells and triangles provide background data. Each cell of the upper half of the model can now be viewed against each cell of the bottom half. After taking all these comparisons into consideration, the planner uses the last column to set forth a plan of action that he hopes will bring the existing system as described in the lower triangles to the state described in the upper triangles—the intended system. What changes must occur in each of the specified areas for the system to progress from the one state to the other? The model should help the planner to arrive at these decisions while keeping all important factors in mind, and it may serve to deter him from making decisions in one area that would be detrimental to another. The overall picture attained by each of the preceding steps becomes, therefore, a tool utilized in executing the fourth and final step.

In the four stages, the planner takes a systematic look at the current situation; builds his own concept of the ideal system; compares his intended system with the existing one by looking at an accurate presentation of the characteristics of the target population and by cross-analyzing each of the factors presented in the model; and charts a way to bring the current system to his ideal image by means of an operational program plan in which each variable is accounted for.

The model outlined in this chapter is a tool to be used for planning purposes either conceptually or graphically. By using the model to analyze each of the variables, the planner can see the entire task he is undertaking.

III. Target Population and Preprogram Surveys

A program's target population is its reason for being. Indeed, any program of functional education for family life planning results from a population that is viewed as one in need of change. In this respect the program is, in a sense, for the people. Obviously the planned program is also by the people as it is only they who can bring about the change desired. Unfortunately, many programs do not draw the logical conclusion that a program can and should also derive *from* the people. This does not mean that members of the target group will be pressed into service as teachers or that the entire burden of program design will be placed upon participants. In this chapter the nature of the relationship between the program planners and the target population will be discussed in an attempt to elaborate upon the meaning of a program deriving from its target population.

Determination of Target Population

One aspect of the determination of the target population was discussed in the first chapter. There, emphasis was laid upon the importance of planning the program only after a specific group of people has been chosen as its potential clients. Determination of target population cannot, however, end with the choice of a particular group of people for whom a program will be designed. It is not enough, for example, to determine that the program will be designed for young married couples living in rural areas. This only initiates the process of target population determination. Here some of the subsequent steps will be analyzed.

Similar to the broad decision on objectives, the determination that a program should focus upon a particular group of people is a statement of intent. As has been seen, it is usually arrived at by trying to pinpoint that segment of the population upon which a program of functional education for family life planning will have the greatest effect. That decision, or pinpointing, is usually based on certain assumptions, but it cannot be based upon absolute evidence. Specific evidence relating to the potential of a program for one group of people rather than another does not yet exist. The newness of the programs and the fact that there has been no previous experience in their conduct creates a situation where initial assumptions must be based on little more than educated guesses.

While a planner might find it relatively easy to determine what portion of the population is most in need of family planning activities, it is more difficult to determine what segment of the population would respond best to an educational program aimed at family planning or, indeed, how any segment of the population would respond to such a program.

It follows that the initial decisions regarding target groups have to be examined and substantiated as much as possible. A program

planner should do this before launching a massive program, as he may discover errors in the initial assumptions. Such errors would only be perpetuated if they were allowed to exist unchallenged. There are two ways in which the initial decisions can be examined and substantiated: a pilot project and a survey of the target population. Neither excludes the other, and in an optimum situation both should be employed.

Rather than launch a large-scale program based on untested hypotheses, the planner may undertake a pilot project, a limited program among a small sample group chosen because its characteristics approximate those of the total target population. In this pilot project he designs a program, prepares some materials, decides upon a methodology, trains teachers, and conducts what amounts to a full program except that it is on a limited scale. The pilot project must be followed very closely by the planner so that he can evaluate its success. Before expanding the program he might well decide to reverse or otherwise revise some of his initial assumptions. In operation, the pilot project is treated as if it were the real program. In a sense it is a laboratory for testing both the approach and the assumptions originally decided upon. For the pilot project to succeed, it is imperative that adequate evaluation procedures be introduced and maintained throughout. In all cases of adult functional education programs it is strongly urged that pilot projects be initiated, particularly for programs in which the content is family life planning, where so little is known about the validity of basic assumptions and the efficacy of various approaches. Hence, it would not be amiss to view the planner's role as a process of trial and error. The margin of error in the subsequent full program will be greatly reduced if a pilot project or, even better, a series of pilots, is carried out.

The second way in which the basic assumptions can be validated or invalidated is by the conduct of research or surveys specifically designed to examine these assumptions. This approach is not

necessarily an alternative to the conduct of pilot projects but, rather, should be seen as a complementary activity. Such surveys and research can even be a part of the pilot projects. Ideally such studies should be conducted independently of pilot efforts. The best approach, naturally, would be to conduct both surveys and pilot projects.

Target Population Surveys

The object of the target population survey is to gather information regarding the characteristics of the group; their interests, concerns, motivations, knowledge, attitudes, and behaviors. Why is all this needed? Because when programs have been planned and implemented without reference to the target groups for which they were intended, all too often they have failed. While a program planner should not lose sight of his objectives, neither should he forget that what is important is that these objectives be transferred to a given set of people. It is these people who matter, not the neatness of a particular methodology.

The often-followed precept that a program that has succeeded in one place will succeed in another is a mistaken one. It is not the program that was the success but rather the marriage of the program with a particular group of people. To lose sight of this is to go forward on a wholly mistaken set of assumptions. The specific design of a program—its methodologies, materials, teaching aids, instructors, and organization—must be tailored to the needs of each group on the basis of the group's situation and characteristics. This approach is "situation-specific." It assumes that different populations have different characteristics and that these are crucial factors for the design of any element of the program. It is in this respect that a program should derive from the people, and it is for this reason that information is required in such detail.

A planner needs information regarding many aspects of the proposed target population. He may begin by collecting some pertinent statistics. These might include the following classifications of information:

1. Urban or rural residence
2. Extent of urban-rural contacts
3. Occupations
4. Occupational structure: who does what and when
5. Authority structure: who makes decisions and how
6. Information pertaining to living styles: housing, home furnishings, food habits
7. Religious affiliation and traditions
8. Child-rearing habits and traditions
9. Existing and traditional modes of education
10. Relationships among people in the community
11. Recreational activities
12. External sources of information
13. Relationships with other communities
14. Age structure
15. Sex structure
16. Role of the sexes: work distribution, responsibility distribution, degree of mixing of the sexes
17. Particular cultural traditions
18. General attitude towards outsiders and the outside world

Some of this can be statistically presented, but most of the data requires a descriptive presentation. Clearly, each of the items listed has a relationship to some aspect of the program.

Following the collection of this general data, more detailed information regarding individuals in the population is needed. Such information could include the following:

1. Knowledge
   a. Of reading and writing
   b. Of family planning techniques
   c. Of farming techniques
   d. Of food preparation techniques
   e. Of language: type and extent of vocabulary
   f. Of health practices
   g. Of the human body and its functions
   h. Of the external world: communities other than one's own
   i. Of local, regional, and national government
   j. Of public services
2. Attitudes
   a. Towards education
   b. Towards family planning and different family planning techniques
   c. Towards change in general and towards different areas of change such as diet or agriculture
   d. Towards outsiders
   e. Towards illness and the use of doctors
   f. Towards children
3. Practice
   a. How does an individual conduct his day?
   b. What tasks does an individual perform during the day?
   c. What are an individual's practices regarding children and the raising of children?
   d. What are an individual's practices regarding illness and the use of doctors?
   e. What are an an individual's practices regarding education, his own and his children's?
   f. What are an individual's practices regarding relationships with the opposite sex?

This list is merely suggestive of the types of information that would be required. It is obviously not an exhaustive list, though it includes a fair amount of detail. It is also obvious that most of the items on the list can be ascertained only through direct contact with individuals from among the target population. A field survey or study is implicitly stipulated.

In addition to being the best way to collect this kind of data, a properly designed field survey can also yield valuable information about the motivations and interests of the target population. The program is basically an intrusion upon the normal pace of life in a community, and individuals are asked to participate in it in addition to their regular activities. It becomes crucial, therefore, to present the program in such a way that it will attract participants. A program that is not designed to cater to the specific interests and needs of a particular group of people is doomed to failure. Much of the data collected will help in determining points of motivation, but it is implicit rather than explicit. In the community development movement this aspect of information-gathering has often been referred to as information relating to "felt needs." In other words, what are the needs of the target group as its members themselves see them? It is assumed that a program designed to cater to these "felt needs" has a greater chance of attracting participants.

Methods of Conducting Surveys

The planner has at his disposal many different ways of conducting field surveys. Some of the information he needs probably can be collected through sources available outside the field, such as previous studies and statistical surveys. At some point, however, he will find it necessary to go into the field armed

with the questions he seeks answers to and collect the information.

Optimally, a census-type survey would be conducted: each member of the stipulated target population would be interviewed and all the answers pooled to arrive at a comprehensive picture. This is typically not possible, of course. It is too time-consuming and too expensive. Fortunately, an adequate picture can be drawn from a well-designed and careful sample survey. The way in which the sampling is done, however, can provide a valid picture of a situation or can serve to bias the picture. Thus, for example, questioning twenty teen-age girls in one village will hardly provide adequate information about the farmer father of five. Extrapolating from such a sample for an entire population would be a grave error.

The sample must be large enough to provide some variety and it should be representative of the entire target population. If, for instance, the target group consists of people between the ages of fifteen and forty-five of both sexes the sample must encompass adequate representation of the whole range within the group. Inadequate representation can so bias the sample that a particular segment of the overall group is either over- or underrepresented. Planners should keep these points in mind when designing a sample. The actual method used for sampling—random, stratified, or clustering—is of less importance than that the sample is sufficiently large and representative of the total group.

Following the determination of the sample, it is necessary to decide upon a method of surveying. Most common is the use of questionnaires. Since the planner knows what information he is seeking, he can translate his requirements for data into a series of questions to be asked of the people in the sample. It is important, of course, that the questionnaire be constructed with great care. A question omitted in the questionnaire will mean that one part of the data will be missing. To go back at a later date with a second

questionnaire is expensive, and tedious both for the interviewer and the interviewed. In constructing a questionnaire, first list the items of information desired, and then translate each item into a question or series of questions.

The exact nature of the questionnaire may be determined by factors other than those directly associated with either the questions or the target population. A planner may, for instance, desire to compare answers or to see whether there are variations within a certain range of possibilities. He may want to make use of a computer in summarizing the questionnaire. It may be that a questionnaire will be administered by an untrained interviewer and the planner will wish to mimimize the possibilities of errors in recording of answers by interviewers. For all these reasons it may be desired to construct a multiple-choice questionnaire in which the possible answers accompany the questions and the task of the interviewer is to signify which of several answers the interviewee chose.

The planner may be interested in having answers to questions recorded in the words of the interviewee. Although the interviewing, recording, and analysis of such questionnaires is usually more difficult, information can be gleaned that cannot be gathered through the multiple-choice model. With this kind of questionnaire recording, it is possible to analyze local dialects, peculiarities of speech, and language usage for subsequent use in the development of materials. It is, of course, possible to make use of a combination of these approaches.

One method of target population research in adult education that deviates from the more typical questionnaire method is the one proposed by the Brazilian educator Paulo Freire and used by him in programs in Brazil and Chile. He has devised a method he calls the "generative theme approach." In this method a questionnaire is not used. Instead, a team of "investigators" is sent to a particular group in order to observe their daily life. As a result of

their observations a series of presentations can be prepared. These may be either visual, such as drawings and photographs, or oral, such as topics for discussions. Armed with these presentations, the investigators return to the target group and organize a series of dialogues with members of the group, making use of the presentations to spark discussion. Since the presentations were made in a milieu with which the participants are entirely familiar, it stands to reason that an animated conversation can result. Freire contends that a series of generative themes emerges during the course of this dialogue. He considers these themes to be the substance of topics in which the target group is interested. Attitudes, knowledge, and behavior will also emerge from the dialogue. The role of the investigator at this point is twofold: he serves as a coordinator of the dialogue and as a recorder of the proceedings. Through an analysis of the proceedings Freire believes that all pertinent information will emerge. In addition to the themes a series of generative words will also emerge. These are also indicative of the interests and attitudes in a particular group. The analysis of the material, according to Freire, is a process of "codification." The items and indications emerging from the dialogue present a code of both generative themes and generative words that can be used in the subsequent program. Experiences with the Freire approach have illustrated its ability to unearth many more elements than a questionnaire, because the questionnaire is relatively rigid and predetermined.

Observation is another method of surveying that is often used. Here, neither a questionnaire nor a process of codifications is used; an observer is sent to an area to observe the target population, enter into dialogue with members of the group, and then record his observations. This technique is often used for anthropological research.

Utilization of one approach does not preclude utilization of any of the others. Indeed, a combination of several might suit the situation. One can err in the conduct of such surveys only by doing too little, never by doing too much.

The uses of the data collected in the surveys will become evident as we discuss the construction of a syllabus, the development of the curriculum, and the determination of instructional methodologies. It should also be mentioned that the material collected during the survey is necessary for postprogram evaluations. If one is to examine the achievements of a program, it is crucial to be able to paint a detailed picture of the character and nature of the population prior to the program. The preprogram surveys thus become a highly significant point of reference that accompanies a program throughout its existence and through the postprogram evaluation stage. A properly conducted preprogram survey is one of the most important elements of any program and especially of a program of functional education for family life planning.

IV. Syllabus and Curriculum Design

At different times and by different people the content, which is central to any education program, has been considered under the headings of either "syllabus" or "curriculum." The exact difference between the two terms has become somewhat hazy, and they are often considered synonomous. In fact they are not, and each performs a distinct function relative to the content of an educational venture.

A syllabus is basically no more than an itemized list of topics that a given program is to cover. In its most elementary form it is merely a listing of subjects, similar to an agenda. In its more detailed form each subject heading is subdivided. The syllabus is crucial to the planning process because it serves as the basis for the curriculum, time specifications, and methodology. Furthermore, the syllabus sets the policy of a given program in terms of what it will and will not instruct. It serves as an indicator of what is to be transmitted in a program.

While the syllabus determines the "what" of a program, it makes no decisions regarding the "how." These are described by the curriculum. In recent years the term "curriculum" has come to mean a range of activities. By being charged with the determination of the "how" of a program, the curriculum includes both methodology of instruction and the materials used. "Curriculum," then, refers to the educational strategy to be employed. "Curriculum development" refers to the entire complex of activities that relate to the detailed preparation of a teacher's presentation and the manner in which material will be presented.

Careful curriculum development is always important, but it is especially so if the teachers are not adequately qualified. In that case materials and methods are crucial. Adult literacy programs and adult educational activities in developing nations are often forced to use poorly qualified teachers. By designing a careful and adequate curriculum, the program planner can greatly influence classroom activities and thus contribute to its success. In a program of adult functional education and family life planning, the range of topics to be covered is so broad that there is little chance that instructors with adequate backgrounds will be available. This is exactly the kind of situation where the curriculum must compensate for teacher inadequacies. The syllabus determination and curriculum development phases, therefore, are essentially complementary, with the latter deriving from the former.

Setting a Syllabus

Although the final form of a syllabus is apparently a mere list of topics, the process of arriving at the final register can be complicated. The person who designs the syllabus must pass through a variety of stages and choose from a number of approaches.

A syllabus, it should be remembered, is tantamount to a declaration of contentual policy. Unlike a curriculum, the decisions imposed upon a program by a syllabus are basic policy decisions with which a program will find it difficult to compromise. Indeed, introducing revisions into the syllabus signifies a change in the basic policy of a program. Curriculum, however, and the entire curriculum development process have built into them a notion of change. A curriculum, by definition, is dynamic.

At the outset of the determination of the syllabus, an overview of all subject matter pertaining to the particular terms of reference of a program should be set forth. These can be broken down into subject matter, and the subject matter in turn can be subdivided into topics. The overview of all subject matter that pertains to the objectives of a program is far from being a final syllabus. It serves merely as a point of departure. At this point the approach to the task at hand is hypothetical: given the terms of the program, what would be the optimum set of subject and topic variables without taking into consideration any other factors? The syllabus is constructed in a total vacuum, as it were. The situation can be viewed conceptually as follows:

$$PO=A(A_1+A_2+A_3+\ldots.A_n)+B(B_1+B_2+B_3\ldots.B_n)+\ldots.N(N_1+N_2+N_3+\ldots.N_n)$$

where:

PO = program objective
A = subject A
A_1-A_n = topics in Subject A
B = subject B
B_1-B_n = topics in Subject B, etc.

Even here, however, certain decisions must be made regarding a weighting of topics. It is conceivable that in an optimum but hypothetical situation an individual could spend his entire life studying a series of subjects and topics. He would not be able to

cover all topics within a subject to the utmost degree of detail. Therefore, some basic decisions as to which topics are of more direct significance to the program objectives need to be made. This is the first process of weighting. Each topic is weighted in relation to every other topic and to the program objectives in order to arrive at this initial level of subject and topic listing.

Clearly, the resulting list is nonfunctional. It is far too long and involved and cannot be implemented as it is. In the next stage the initial list is pared down and a new, revised list made. Several factors determine the way in which the list is reduced. The first major constraint is time. Every program has to function within certain predetermined time limits. Thus the list needs to be reduced so that the topics can be covered comfortably within the alloted time. Two other constraints also intervene: teachers and budget. The syllabus needs to be constructed in such a manner that the program planner can assume that the available teaching staff would be able to cope with the subject matter without necessitating a training input that would itself amount to a major educational program. Furthermore, it is conceivable that budgetary restrictions will also stand in the way of an extremely involved and demanding syllabus. On the basis of data concerning these constraints, the syllabus planner can begin devising criteria by which he will reduce the syllabus.

The new list, a revised version of the first effort, is almost the final syllabus. The stage is now set for the third and final stage in the process. On the basis of constraints imposed by an analysis of the target population (see Chapter III), the planner can further revise the list. In all likelihood, certain subjects and topics will turn out to be irrelevant. Moreover, target population attitudes, beliefs, and cultural traditions may further necessitate revisions in the syllabus.

When the subject and topic listing has been pared down taking into account the knowledge, attitudes, and practices of the target

population, the syllabus is ready. Through the process of narrowing down an initial broad list to a final cohesive one, a syllabus is arrived at that is specially designed for the particular situational constraints affecting a program. The final syllabus reflects not only the program objectives and the planner's view of the weight to be given each subject and topic in the actual instructional phase but also limitations imposed by time, budget, staff, and target population.

Adult functional literacy and family life planning can be interpreted by different people in different ways, so that the scope of subject matter to be included can be broad or narrow. Each program must decide for itself what areas it wishes to include. These decisions reflect not only the constraint limitations but also the philosophy of the entire program. Since there has been so little experience in this field, all the more care must be put into setting the syllabus.

Armed with a syllabus, the planner can initiate other operational activities such as curriculum development, recruitment and training of teachers, and actual instruction. Without a clearly delineated syllabus these other activities have no base in which to anchor. The syllabus forms the contentual base from which the other educational activities emanate.

A Sample Syllabus

In the following section an example of a subject and topic listing prepared for an adult functional education for family life planning program is presented. It has a hypothetical time factor for classroom instruction (200 hours), takes into account information on the type of teachers available, conforms to hypothetical budgetary directives, and, finally, is based upon a target population survey that has ascertained which of the subjects and topics

in the initial listing were known and which were not; which were of interest to the target group and which were not.

This syllabus also forwards a notion of the content of a program: the conception of family life planning here is broad and includes several different aspects of a family's life rather than a more narrow interpretation that would focus only on family planning and contraception. The underlying assumption is that each of the areas touched upon has a relationship to family size determination.[1]

1. Health and hygiene
   a. Common illnesses: diagnosis and treatment
   b. First aid
   c. Prenatal care
   d. Postnatal care
   e. Caring for babies and children
   f. The body: its parts and functions
   g. Introduction to family planning techniques
   h. Personal hygiene
   i. Home hygiene
2. Agriculture
   a. Rice farming: stages and techniques
   b. Tobacco growing: stages and techniques
   c. Sugar cane cultivation
   d. Home gardening
   e. Fruit cultivation
   f. Poultry-raising
   g. Farm cooperatives
3. Language
   a. Letters and vowels of the alphabet
   b. Basic word level (1,000 words)
   c. Filling in forms

[1] This syllabus is one that was adopted by an adult functional education and family life planning program in Thailand sponsored by World Education and the Thai Ministry of Education.

d. Letter-writing
e. Readings from national literature

4. Calculation
   a. The use of numbers
   b. Simple arithmetic: addition, subtraction, division, and multiplication
   c. Measurements
   d. Time
   e. Money
   f. Population-related arithmetic
   g. Budgeting
5. Domestic sciences
   a. The family
   b. Introduction to nutrition: food values and the diet
   c. Meal constructio
   d. Seasonal foods
   e. Child-rearing
   f. Family budgeting
   g. Sewing: making and mending clothing
   h. Home industry
   i. Home repair
6. Geography
   a. National and regional geography
   b. Climate: seasons
   c. Production and productivity
   d. Population: trends in population growth
   e. Communications: the media
   f. Important centers (urban and rural)
7. Civics
   a. Forms of national, regional, and local governments
   b. Rights and responsibilities of citizens
   c. Rules and regulations
   d. Public services: utilities, health services, family planning services, and educational services

Obviously, this syllabus could have been presented in far greater detail than shown here. The syllabus is a reference tool for curriculum developers. It is they who determine the components of each topic and work out the details. The syllabus presented ranges over a wide span of subjects and topics. The exclusion of some and inclusion of others resulted from the application of the various constraints upon an initial listing which was even broader. It is fairly easy to see from this syllabus the planners' conceptions of family life planning and functional adult education. The next step is to translate the syllabus into a curriculum.

Developing a Curriculum from a Syllabus

In the context of an adult education program, curriculum design consists of two distinct tasks. The first is to determine what is to be taught. The second is to decide how the syllabus is to be taught. In other words, the curriculum both details the specific content and determines, to a degree, the teaching methodology.

The determination of content is not a continuation of the syllabus function of listing subjects and topics, but is arrived at through preparation of materials. The materials are transmitted to the participants in the program through an instructor. There are thus two levels of transmission of the syllabus to the target group. First, the curriculum translates the syllabus into a specific core of materials. This function entails further listing of syllabus details which continues until the final preparatory phase of the curriculum actually spells out the material. On the second level, it becomes the teacher's role to draw the nexus between curricular materials and students. The way in which the teacher does this is the methodology. The curriculum, however, because it is presented through the materials, can dictate to the instructor many of the elements of methodology and thus can become the main

vehicle for the development of the program's instructional approach. The role of the curriculum is, therefore, twofold.

There are several reasons for a curriculum's assuming this dual role in adult functional education. Indeed, in the planning and organization of most of formal education, the curriculum development process is not undertaken solely by the program's organizers. In most situations the governmental body responsible for the formal system does not go further than the setting of a core syllabus. The tasks here called curriculum development are most typically performed by authors of textbooks and publishers. A textbook delineates how a particular subject or topic in the syllabus is to be presented and suggests to the teacher how the material is to be taught. Since primary and secondary education are the major portions of any educational system, and the number of participants is large and relatively constant, in most countries a number of authors and publishers participate in developing curricular materials, and the teacher can usually make a choice among a number of options.

In adult functional education activities, however, the relationship between the private publishing sector and the governmental or public body conducting programs is not, as yet, well developed in most countries. As a result, it is the program planners who have the major responsibility for the production of materials and for curriculum development. Furthermore, since instructors in adult functional education programs, and in particular in literacy efforts, are usually poorly qualified, the materials produced must be explicit in suggesting classroom methodology. Experience has shown that teachers in such programs tend to adhere strictly to the written materials and aids made available to them. Hence, careful curriculum development is important.

Designing a curriculum is a complex process. The curriculum developer must perform a number of tasks in order to arrive at a

final product. Using the syllabus as a point of reference the curriculum development process may be as follows:

Stage 1: The material in the syllabus is stratified into a series of units. These units are, on the one hand, contentual and necessitate a determination of the specific content of each topical unit in the syllabus. On the other hand this stratification has the task of assigning time elements to each of the units. To some extent the task being performed at this stage can be likened to the laying of a mosaic floor. A certain picture is envisioned as a whole, then broken up into many different pieces, each of which is assigned a specific position. The final aspect of this stage consists of laying the numerous pieces down in the allotted amount of space.

Stage 2: After the designer determines the units and their detailed content, he turns his attention to questions of methodology. How are the units to be presented to the learner?

Stage 3: At the final stage of the curriculum development process the units arrived at in the first are superimposed upon the approaches and methodologies determined in the second, and actual production of materials commences.[2]

Different Types of Curricula

The detail of units undertaken in the first stage of curriculum development is not purely a technical process consisting of designing palatable units of instruction. Indeed, before the curriculum designer can begin, he must determine what type of curriculum he wishes to design. His only point of reference, the syllabus, provides him with little more than an idea of what the

[2] Stages 2 and 3 are discussed in Chapters V and VI.

learning experience he is designing must comprise. It does not tell him how that totality is to be broken down. In programs of adult fundamental education two types of curricula have so far been developed: the subject curriculum and the integrated curriculum.

In a subject curriculum approach, each subject is taught independently of the others and each topic is presented sequentially. In arithmetic, for example, multiplication and division are taught only after addition and subtraction. There is a sequential relationship between the first pair of topics and the second in that the skills developed through learning addition and subtraction are required for learning multiplication and division. In developing a subject curriculum, the designer must look at each subject and the topics it contains and determine the sequence in which they will be presented. This is done on the basis of each topic's role as a provider of knowledge and skills requisite for subsequent topics. Part of the function involved consists also of assigning weight factors to each sequence: how much material must one topic include, and what period of time is necessary for the particular skills and knowledge to be adequately taught. There may also be a sequence among subjects such that one subject would be taught before another. In this approach, the program participant is presented with a series of clearly delineated subjects and topics which are learned in an orderly and sequential fashion.

The integrated curriculum approach takes a different view of the presentation of subjects and topics. It assumes that many topics within subjects relate to each other. Thus, for instance, arithmetical aspects of money and of family budgeting have a clear connection. Similarly, some topics in the analysis of population growth can be related to both arithmetical and agricultural topics. In essence, the integrated approach redefines subjects in an attempt to pool topics from various traditional subjects around a newly defined subject area related to a practical problem. The focus shifts from the topic itself to a problematized situation that

draws upon various skills and knowledge collected from a number of the traditional subjects. In approaching the subject curriculum in this fashion, the integrated curriculum approach hypothesizes that a real-life situation is not stratified according to subject matter but, rather, requires an amalgam of skills and knowledge. The role of the designer is to collect or cross-classify the subjects and topics in the syllabus and make them into a series of integrated presentations. In some cases an entire curriculum is integrated in such a way that the student receives a logical and continuous presentation in which topics from the various subjects are introduced at points where they relate to the overall problematized situation. This approach effectively elminates the rigid classification and presentation of topics by subject. More and more adult education programs are choosing the integrated approach rather than the more traditional subject approach.

An integrated curriculum lends itself to the problem-centered method preferred by many adult educators. In this approach a "real-life" problem—one that program participants are concerned with—becomes the focus of attention.

The process of unit determination depends on the planner's choice between these two approaches. The curriculum designers's role is somewhat different in each. Quite obviously, the approach adopted will influence the methodology and set forth certain parameters within which the next two stages of the curriculum development process will occur.

Syllabus and curriculum design are the first stages in the evolvement of the content and methodology of a program. In their next phase of development they must be combined into a coherent system. The entire process is integrated and one stage flows naturally from the other. Throughout the process one should not lose sight of the fact that the final testing ground for both the syllabus and the curriculum is in their application at the classroom level, and the final judges of the efficacy of the work will be the program participants.

V. Teaching Methods

The choice of instructional methodology is perhaps the most difficult and important aspect of program development. However well intentioned a program may be, however cogent and coherent its syllabus and curriculum, an inappropriate teaching method can be its undoing. The careful analysis of alternatives and of information relating to the many factors affecting the mode of instruction becomes vital to the planning process.

It is sometimes argued that there is no need to specify the teaching method and that each teacher should be left free to devise his own approach. Indeed, the argument goes, the essence of teaching is the determination of an instructional methodology. The creative teacher can even develop his own materials if those provided do not meet with his approval. The counterargument does not entirely negate this affirmation. It concedes that teaching is the art of developing and applying an instructional approach at the classroom level. However, the very materials available to a teacher dictate to a large extent the teaching method.

The more materials available, the greater the latitude an individual teacher has to determine his method of work. The

materials available in most adult education programs, however, are limited, and the teacher has very little choice. This is especially true in family life planning education. Consequently, the materials that are developed for such a program are very likely to determine the instructional methodology. This is certainly more true than in other sectors of education, where a myriad of materials are available. If the teachers are well qualified, or if there are time and facilities to train them, then the materials they work with are of secondary importance. But in adult fundamental education the teachers typically available are poorly qualified and the time for training is limited. Thus, the burden of methodology falls primarily on the materials themselves and the need to determine a methodology of instruction becomes much more acute. This line of argument does not negate the other approach; it simply attempts to analyze realistically the situation confronting the planner in charting and establishing an educational program for family life planning.

Unless a particular program has the latitude, usually determined by the budget, to put forth more than one set of materials, and hence more than one methodology, it is necessary to focus upon one approach.

Factors in the Determination of Methodology

A methodology is basically a strategy for transmitting a syllabus to a target population. It must be derived from an analysis of the particular characteristics of that group. When these characteristics are applied to a set of experiences and accumulated knowledge about a learning theory, a methodology has been stipulated.

The main factors associated with instructional methodology are those relating to the target population. Several different types of data are required:

1. Administrative data
   a. Physical facilities available for instruction
   b. Furnishings of the classroom, including availability of electricity and lighting
   c. Time of day instruction will occur
2. Target population characteristics
   a. Attention span
   b. Ability to think abstractly
   c. Motivations for education
   d. Attitudes towards learning
   e. Traditional learning patterns

This information, most of which has already been assembled through the target population survey, indicates the approach that has the greatest chance of success. Once the data has been analyzed, the approach can be tailored to particular population groups. Examples of decisions that can be arrived at are the following:

1. Length of instructional units
2. Size of class
3. Whether learning groups should be segregated or integrated by sex
4. Dialogical versus frontal presentation
5. Possibilities for employing audio-visual aids
6. Level of abstraction to be included in the teaching material

Another set of factors to be considered are those relating to the teachers. Who are they? How much training and experience have they had in adult education techniques? What do they know about the human body, about contraception, about population? How comfortable are they in using the language of family planning? The degree to which a methodology can be simplified or left fairly free for the teacher is largely a function of the types of people

participating in the teaching force. Hence, an examination of the qualifications and experience of the available teachers is essential.

Duration of a program will also influence the method employed. It will help decide the pace and detail of the material.

The data assembled can only indicate some desirable aspects of a method. The determination of the method itself requires applying that data to adult learning theory in order to choose the approach best suited to the particular situation. The methodology finally chosen will thus be a combination of various factors with learning theory on the one hand and with the requirements of the syllabus on the other.

Problems in Adult Learning and Their Relation to Methodology

Most adult fundamental education programs are, and will in the future be, distinguished by one common feature: they are aimed at illiterate adults who typically have not had any prior formal schooling. Indeed, the functional programs envisioned for purposes of family life planning education are to a large extent functional literacy programs. One of the objectives is to teach people to read. Many of the materials produced will be written materials, and the target groups must be taught the skills necessary to cope with them. Furthermore, the notion of using an adult educational program for family life planning education is essentially an outcrop of functional literacy programs. Although the approaches and materials may differ immensely from those used in traditional literacy programs, planners can learn a great deal from the experience of such traditional programs, especially about the learning problems of illiterate populations.

The major problem of adult fundamental education and the root of most other problems is the motivation of the target

population. Attendance is voluntary. The only way participants can be gathered is by making them want to come. Confronted with a population with no tradition of formal education, the planner finds that those for whom he has designed his program do not flock to his center just because an educational experience is being offered.

Consider the following scene of an adult class in a typical rural area. After a long and arduous day's work, a class is convened in the local village school. It is a poorly lit structure where furnishings are scaled down in size to accommodate the primary-school children who use the facility during the day. In this crowded and uncomfortable environment the adult is presented with a primer through which he is lectured frontally by a poorly trained teacher, very often a primary-school teacher. The material in the primer is both uninteresting and difficult for the pupil. The subject matter is abstract, as it has been chosen for its applicability to language instruction. Upon thumbing his way to the end of the booklet, a learner discovers that the texts increase in length and the illustrations diminish in number. If it takes so many hours to "read" through the first few pages, which turn out to be so contentually insignificant, thinks the student, why bother staying in the group until the end of the booklet is reached? True, the village offers few distractions. Sleep, however, is always welcome. Compounding this picture is the fact that literacy skills are not required in the least for daily living and their attainment does not seem nearly as important or significant an accomplishment as, say, increasing the rice crop.

Not only must the content be interesting, but also the ways in which it is presented must stimulate him. Programs that have failed in either of these two areas—content and method—have suffered extremely high proportions of dropout. Several factors relating to the learning of illiterate target groups may be useful in the design of methodology and curriculum. While clearly each

situation has its own particular problems, an analysis of adult illiterate learners around the world shows that the following factors are relatively universal.

1. Attention span: Having had little or no previous organized and formalized learning experience, the attention span of illiterate adults is usually short. Also, in most programs adults come to the sessions after a long day's work, and fatigue further shortens the attention span.

2. Time factor: Most of the students have other work to do and other responsibilities. They usually have little time for preparing lessons. Furthermore, their homes may be crowded, dark, and noisy. Thus, the bulk of the learning will take place in the classroom. It is an error to put much reliance on outside homework.

3. Formal versus nonformal operations: In Piagetian terms, it has been found in many countries that adult illiterates are developmentally at a level of formal, concrete operations. On the other hand, some studies have shown that adult illiterates are not hampered in the development of nonformal operations and are quite capable of fairly complex abstract thought. Since the degree to which a person can or cannot think abstractly is of paramount significance in the design of both methodology and curriculum, it is advisable to find this out during the preprogram target population survey. A useful means of doing so is proposed by Daniel Lerner in what he calls an "empathy scale." Interviewees were asked to envision themselves in another person's shoes or in another situation in order to discover whether they were capable of abstraction and, if so, to what extent. Tales such as that of the illiterate villager who could not believe that men had landed on the moon since it was "obviously too small for a man to walk on or even stand on" are revealing and should be considered with care. Both the level and

form of presentation will be determined by this factor to a large extent.

4. Sense compensation: Literacy skills are a form of communication skills. They enable man both to extend his own communications and to store information. However, people who cannot read do not have a more limited capacity for information storage than people who can read. In fact, they tend to compensate for the lack of these skills by having highly developed memories. It is no accident, for instance, that many illiterate cultures have been able to record entire traditions by word of mouth. This form of compensation is not unlike what is known as sense compensation. A blind person compensates for his blindness by developing extraordinary acuity in other senses such as touch and hearing. This factor is important in designing an instructional methodology.

5. Traditional modes of learning. Every society, whether literate or not, has means for educating its members. Although such education would not be considered a formal educational system, in many respects it is. A program planner should observe traditional learning patterns to discover clues that are applicable to the teaching methods he is planning.

One further observation is warranted. Illiteracy is no more than a state of being unlettered, the inability to communicate through the medium of the written word. The tendency in many adult literacy programs to equate illiteracy with ignorance or lack of intelligence is wholly erroneous. The illiterate adult is often an otherwise knowledgeable individual and certainly is not lacking in his intellectual capacity. To treat adult learners as if they were grade school pupils is one result of this tendency and, like the tendency itself, a gross error. Adults should be treated as adults and as equals throughout the learning process of a program.

Methods of Literacy Instruction

The techniques that have been developed to teach reading and writing skills are applicable to adult functional education and family life planning programs when these programs are intended to be extensions of literacy efforts.

The era of "functional literacy" heralded at the International Conference of Ministers of Education on the Eradication of Illiteracy held at Teheran in 1965 signified a change in the concept of literacy education. Traditionally, literacy programs had the teaching of reading and writing skills as the objective. The functional literacy movement recognized that such programs have limited potential for success and, consequently, that literacy instruction should be related to immediate functional needs. This approach underlies the concept of functional education and family life planning programs: family life planning is the functional aspect with which literacy instruction is to be associated. That being the case, the methodologies employed in literacy programs may well have some value to the functional education program planner.

A distinction should be drawn between a methodology of instruction and an approach to the conduct of an educational program. The functional literacy approach is just that—an approach, not a methodology. Indeed, functional literacy programs have, to a large extent, employed the same methodologies of instruction used in traditional literacy campaigns.

There is a fundamental difference between the traditional approach to literacy programs and that put forward by the functional literacy movement. The traditional approach saw in literacy skills themselves an ideal or an objective. The functional approach sees literacy skills as a tool necessary for the attainment of other objectives. Therefore, while functional literacy programs in theory cannot exist independently of other factors, traditional

programs tended to focus all their attention upon illiterate adults without regard to their particular situation.

The functional approach has two main directions. In the first, literacy is considered a component of developmental plans and is, in a sense, considered part of the training of personnel for those plans. The second direction is that known as "work-oriented." It attempts to find a connection between literacy and the occupations of participants so that the program relates to a concrete situation. Unfortunately, the functional literacy movement has not yet developed methodologies of instruction that are either different from or more suited to adult populations than those used for decades in traditional literacy campaigns.

The main objective of any literacy program, be it traditional or functional, is the instruction of literacy skills. There are two main schools of thought in adult literacy methodology: the "synthetic" and the "global" methods. A third methodology, labeled the "eclectic" method by Professor William Gray, is a synthesis of the first two. The synthetic method is based on the recognition of letters of the alphabet and the sounds associated with them. Letters are then formed into syllables, and words are derived from different combinations of these. This method is considered best suited to languages like Hindi and Spanish, in which letters maintain constant pronunciations. Critics find the extensive technical memorization necessary to be tedious and difficult. Although proponents of the method claim the initial alphabet instruction is swift, the few lessons devoted to it tend to be spent in enunciating nonsensical sounds, quite meaningless to the learners at the critical stage when their interest must be held.

The global method is based on the recognition of words or phrases with their meaning. It assumes that if these words are woven into stories or paragraphs with meaning and constantly repeated, the learner will begin to associate written symbols with the nouns or verbs they represent. While no time is spent reading

off lists of syllables, and interest in the content is spurred, users of this method find it to be lengthy in application and therefore a strain on the students. Moreover, it requires better-qualified teachers.

The eclectic method is becoming increasingly popular. It combines elements of the synthetic approach with the introduction of words and sentences from the initial stages of instruction, and is considered by many to be most practical and best suited to the needs of adults.

Without a doubt the person who made the greatest impact on methodologies of literacy programs throughout the world is Dr. Frank Laubach. The method bearing his name is more widely used than any other. First developed for teaching the Maranow language of the Philippines, the method relates sounds to syllables (a synthetic method) and has been applied in 312 different languages so far. The method consists of Laubach's original "key word" method, in which several words comprising all consonants in a language are derived (not necessarily with meaning); new words are constructed by different juxtapositions of consonants and vowels from them. An added feature is a series of charts, used at the outset of instruction and intended to help the learners identify letters and associate them with sounds by superimposing drawings of objects on the appropriate letters. Laubach stressed the need for simplicity in both the method and the materials used. The initial alphabet phase of instruction is followed by three stages of graded readers on a variety of topics which call for the use of the newly acquired technical skills.

Common to all methods of reading instruction for adults is the primer. This is a book or a pamphlet which becomes the learner's first reader. The first word or letters are introduced on the first page of the primer, and eventually both a vocabulary and a completed alphabet are built up.

Some functional literacy programs, especially those sponsored

by UNESCO as part of the experimental world program of work-oriented functional literacy, have recognized the importance of content in literacy efforts. They have attempted to utilize familiar situations or occupational themes as subject matter for the texts used at the initial literacy instruction phase. In all programs, however, it has been assumed as axiomatic that literacy skills need to be mastered before more sophisticated textual material can be introduced. Indeed, how can one construct a meaningful phrase about farm technology with only a third of the letters of the alphabet or with a vocabulary of half a dozen words? The level of the text and its content can be only most elementary.

Evaluations of literacy programs that used any of the methods described above have not been encouraging. High attrition rates, at times more than 50 per cent, are common. The number of graduates still able to read after a significant amount of time following their graduation has typically been low. While these discouraging results reflect to an extent upon the methodologies utilized, other factors are involved. Lack of appropriate follow-up material as well as the lack of an incentive to read are also causes for relapse into illiteracy. Surely these factors combine with that of instructional methodology to produce this poor state of achievement. The prospects for the program planner are indeed grim. The methods available for him to choose from have not proven their potential for success, and every program that uses them runs the risk of failure. We cannot in good faith recommend any of the existing methods.

The planner is thus faced with the complex task of developing a methodology of instruction. It is possible that combining various elements of the approaches outlined would be useful in a specific situation. Later in this chapter a different approach to the instruction of functional literacy skills will be proposed as one example of an attempt to develop a more effective method.

Postliteracy Readers

In literacy programs in which the initial instructional phase consists of a primer or a series of primers, a second phase usually follows which entails the use of postliteracy readers. These are usually booklets specially written to utilize those words already learned and to present learners with a variety of topics. The rationale for the use of these readers is quite simple. Traditionalists say that they serve to reinforce the instruction of the alphabet during the first phase and make literacy a usable skill. By utilizing readers, they say, literacy skill usage becomes ingrained and the process of creating independent readers is begun. Functionalists add to this that through postliteracy readers they can present information of use to the readers. Examples of postliteracy readers abound. Perhaps the most ambitious of these is Tunisia's 71-volume encyclopedia for newly literate adults (*La petit encyclopedie des adultes*).

Postliteracy readers are usually intended to serve as a bridge leading the new literate from the primer to the world of regular written materials. Because most books and newspapers are written at a level that far surpasses that attained in the average literacy program, the postliteracy readers are intended to fortify the new literacy skills of the former illiterates and prepare them for reading more complicated materials. Unfortunately, this is usually not what happens. The gap between the average postliteracy reader and those materials that are produced for adult consumption is very large. The new literate finds himself unable to cope with more complicated texts. He is limited in his reading to those materials that have been written specially for him. He can understand children's books but the subject matter is unsuitable. Some countries have attempted to correct this by providing a permanent framework for materials production at the level of new literates. Typical examples of this are newspapers specially written and appearing regularly, which have been most successful.

Adults do indeed need to be led through an additional phase of literacy instruction after having mastered the basics of literacy. However, postliteracy readers are not enough. In planning a program, cognizance of the postliteracy phase and its particular requirements is important. Programs that do not make provision for a follow-up phase, however successful otherwise, find their graduates rapidly relapsing into illiteracy and the skills learned during the program rarely, if ever, utilized. The difficulty in the postliteracy phase is basically one of seeking a permanent framework through which materials can be provided for the new literates at a level they can read and comprehend and which, at the same time, are of interest to them.

A New Teaching Method Is Proposed

The instructional methodology described in this section is one that was developed for use in a functional literacy and family life planning program in Thailand. The program has been undertaken by the Ministry of Education and World Education. It represents an attempt to overcome some of the shortcomings of existing programs and is presented here as an example of the type of experimentation that can be undertaken to develop new teaching methods.

Rooted in a combination of adult learning theory and a target population survey conducted prior to the development of the method, the Thai approach has a number of basic features and assumptions. The assumptions are:

1. Adult illiterates are "literate" in a visual sense: they can appreciate and understand visual presentations such as pictures and photographs.

2. The primer by its very definition of being a book or pamphlet discourages the beginning learner because the

difficulties faced in getting through the first pages seem like formidable obstacles to reaching the end.

3. A functional literacy program should from the outset present material that is of immediate use to the learner.

4. The highly developed memories of illiterates can be used in the design of a methodology.

5. From the outset of the program, emphasis should be on content rather than on the instruction of literacy skills.

6. A dialogical rather than a frontal teaching approach is better suited to the needs of adults.

7. Subject matter derived from the environment and experiences of participants is more likely to facilitate dialogue than a methodology and curriculum designed without relation to the participants. The content of the methodology is, therefore, situation bound.

Following from these assumptions, a methodology of instruction was evolved. Explicit in the technique are notions pertaining to the curriculum. In effect, the method grows out of the curriculum. The salient features of the methodology are the following:

1. *Illustration:* Since photographs and drawings have meaning and can be "read" by program participants without benefit of a literacy program, they are used extensively. Each unit is introduced by a picture. The pictures are chosen to represent situations with which the participants are familiar and with which they can identify.

2. *The index card:* There is no primer. Instead, a series of index cards is used. On his first day of attendance the learner is presented with an empty loose-leaf binder. Each of the lessons in the program is printed on an index card designed to

fit into the binder, and he receives the cards as he learns them so that at each session he receives an additional set of material. One by one he inserts the cards into his binder, eventually building up a book. In this fashion the progress of the participant is visually presented to him, and he has the added motivational force of constructing his own book. Gaps in the cards point out gaps in participation and serve as an incentive not to miss sessions. The use of index cards also lends itself easily to changes in the curriculum for different parts of the country, where local conditions may vary. A whole new primer does not have to be prepared, merely a few cards. Thus, different portions of the curriculum can be changed for different situations and the theory of situation specificity maintained. The card format also makes it easier to present a complete topic each session. Each card is constructed so that it has two separate portions: a written text on one side and a photograph relating to the text on the other. The picture and text explain each other and serve to reinforce instruction.

3. Content: Relying on the highly developed memories characteristic of illiterate adults, the texts from the very first session present participants with complete and meaningful topics. Even though the text cannot be read at the outset, its content can be retained if it stimulates the interest of participants. Furthermore, the picture serves as a key to the content of the text and aids the learner to recall its specifics.

4. Dialogue: Crucial to this method is a dialogue in which the instructor serves as a moderator of discussion. The catalyst of the dialogue is the pictures, and the group discussion about them serves to introduce each topic. Dialogue is considered a far more effective means of education than frontal presentations by teachers because it creates involvement and increases

interest of program participants in the lesson. In a sense, dialogue makes the learner a student-teacher, and bolsters his confidence in himself by placing value on his observations and opinions.

5. *Key words:* While the associations of the photographs with the text will eventually lead to an association of specific words with their meaning, teaching reading in this fashion is tedious and inefficient. Therefore, in each topic one or several words, preferably those conveying the subject of the session, are chosen to be key words. These are printed on both sides of the index card and are taught in depth during the lesson. Students are taught to write them and to understand their phonic composition. The key words throughout the program are chosen so that in a relatively short period of time they cover all letters in an alphabet. To do this, they have to be graduated in difficulty.

6. *Programming:* A unique form of programming is employed in presenting the textual material. Both the content of the text and the key words are reinforced in a series of exercises that combine the various forms of questioning used in linear programming with the multiple choice approach of branch programming. Conceptually, each index card is treated as a frame in a program. This feature enables the cards to be used in individualizing instruction. Because most program participants will not be able to devote time after class to the exercises in the question and answer portion of the card, time is set aside during each session for individual work under the supervision of the instructor. This way an individual participant who is in need of clarification of a point does not need to wait for the next session, but can receive immediate individual attention from the instructor.

Each of these features contributes to a coherent methodology. The approach may present some administrative difficulties, but these are not insurmountable when the program is administered efficiently. Evaluation evidence from the pilot project in Thailand has pointed to a marked increase in participation and learning compared with the ongoing "regular" literacy program there. Dropout rates have been significantly reduced, interest in the material has intensified participation, discussion has been developed on substantive issues, and recall of the written passages has facilitated both learning and retention of material.

The choice and design of instructional methodology are vital elements in the planning and design of educational programs. They are the key to many other decisions about the curriculum, the choice and training of teachers, and the administrative aspects of a program. Much of the work that will be done in the development of methods of instruction in the field of adult functional basic education programs will remain at the level of trial and error. So far program planners have few successful experiences as models. The field is in an infant stage and all experiences have much broader implications than the development of a new method of instruction in the more established areas of education would have. All experiences in the design of methodology in the area of adult fundamental education at this point in time are pioneering efforts and need to be evaluated carefully and approached with the caution and deliberation that this state implies.

VI. Curriculum Development and the Preparation of Materials

Following the determination of the syllabus and the choice of instructional methodology the planner turns his attention to the operational aspects of curriculum development and the preparation of materials. This, the third and final stage in the curriculum development process, is the culmination of the previous activities. It is the operational manifestation of all the previous planning. Its ingredients are the target population surveys, the syllabus, and the instructional methodology. All of the decisions and activities conducted in the earlier stages of the planning process come to bear. Graphically, the planning process can be likened to the construction of a house. The foundations have now been laid and the walls set up. The final curriculum together with the materials form the roof and complete the structure. All the remaining preparatory phases are the interior decoration. When all preparations are completed the house can be opened to its tenants, the program participants.

The Instructional Methodology and Curriculum Development

The exact boundaries between instructional methodology and the development of the curriculum are rather hazy because the two elements are intertwined. But there is a clear relationship between the method of instruction chosen and the development of the curriculum. The instructional method dictates the direction that the curriculum activities are to take. If, for example, it is decided that a method involving use of a global reading technique will be used to teach literacy skills the curriculum developers need to develop the required primers and produce the materials necessary for implementation of the methodology. In developing the actual primers the curriculum developers will, in effect, superimpose the syllabus on a methodology of instruction. Much of the task will be an operational one of utilizing the units determined earlier and writing the materials. The form the materials will take is a function of the methodology decided upon. Thus, to a large extent the skills requisite for curriculum development at this stage are technical skills of materials writing.

Production of materials, although entailing a set of technical skills, is not purely a technical matter. The curriculum developer must exercise judgment in presenting the material and keep in mind that, since the teacher is likely to adhere rigidly to the materials, these determine the nature of the classroom presentation. Therefore, they need to be constructed and written with both the teacher and the learner in view.

On the basis of the instructional methodology the curriculum developer performs several tasks:

1. Decides on the format
2. Makes a final decision about the division of the material into instructional units
3. Assembles the materials necessary to begin materials preparation

4. Determines the mode of presentation
5. Prepares the materials

The overriding consideration is that the resulting materials must be appropriate for the methodology chosen. There is, consequently, a dependency relationship between the method and the subsequent development of the curriculum.

The Preparation of Materials

This phase of curriculum development is predominantly one of preparation of materials. Without biasing the methodology, the curriculum developer may choose to develop materials that are written, audio, visual, or any combination of these. Presumably the preparation of an audio or visual presentation entails operations such as cutting a tape or producing a film or filmstrip; materials production can consist of far more than the writing of texts.

Writing a text, whether it is a primer or index cards, requires skills in addition to a capacity to write in simplified language for a particular known target population. The writer must be able to capture the language structure of his target audience and to present information in the manner in which the target group is accustomed to receiving it. Because of this it is of the utmost importance that the materials writer be familiar with the target group. He can, of course, learn a good deal by studying the survey data, but he will do a better job if he really knows the people for whom he is writing. Writing a teaching text also entails the composition of exercises. The way in which these are presented and the questions they pose will often determine how material is reinforced and learned. Each exercise needs a rationale; it should not be written just because it seems like a good idea in principle to include a few questions. The materials designer must also know

how much text should be included in a particular unit, what types of exercises should accompany the text, and how much time should be allotted to each unit.

The curriculum developer also determines the way in which a unit will be presented. If audio-visual aids are to be used, he must plan their position in the unit and indicate how to use them and how much time to allocate for each one. Each unit should be a coherent whole, and so it is his task to see that each element of a unit is properly integrated with all other elements.

Writing itself is a difficult task. Is the sentence too long? Have the words used already been introduced to the reader? Has the content been broken down into ideas that make sense to the learner? Writing, indeed, is a specialized skill and it is wise to employ experienced professionals at this stage; even the professional writer may need to be trained in writing for new literates.

Integral to the writing task is the preparation of the instructional aids. Many materials need to be produced in addition to the pages of a book or sides of an index card. The curriculum developer will determine what aids are required and where they should be introduced. Flash cards, slides, filmstrips, tapes, charts, and other aids can be used; the text and the aids must be planned together. This multimedia approach is limited only by constraints of budget, availability of materials, and the imagination of the curriculum developer.

The materials designer will also put to good use the data gathered about the characteristics of the target population. For whom is he writing? Men or women? Farmers or factory workers? Teenagers or parents of large families? People who have been previously trained in abstract thought, or persons limited to the concrete? Be designing material for a known population and taking into account the nature of that population, many mistakes can be avoided. One author has related how he wrote of a fly and included a drawing of a fly on one entire page of a book, but the

students for whom this was intended as identification insisted that no such creature existed. Obviously, this author did not consider that his target group was not able to associate a blown-up visual representation of a fly with the little insects hovering around them every day. Adequate data and a thorough understanding of the target population are prerequisites to the preparation of materials.

Other than these basic guidelines, a combination of skill and imagination peppered with common sense are all that is required for good materials production. The resulting materials are the tools that the program planners place in the hands of the teachers. A program will be only as good as the tools it prepares.

The Materials Production Team

The actual production of materials may involve a team:

1. People knowledgeable in the subject matter—in this instance health specialists, family planners, and agriculturists
2. Writers
3. Audio-visual production experts: artists, photographers, silk-screen artisans
4. A curriculum designer

The curriculum designer forms the link between the other members of the production team and the program planners. He coordinates the activities of the writers and the audio-visual production experts with those of the subject specialists and also makes the decisions regarding format, specific unit content, and method of presentation.

Subject matter specialists are needed to advise on content, method of presentation, and the accuracy of materials. Scattered throughout the existing materials produced for adult literacy programs are numerous errors in the subject matter itself. A glaring example of this is one postliteracy reader written for rural

women in an impoverished country in which the author argues strenuously that children should be weaned at three months of age, obviously a seriously misleading contention. Another states categorically that there are no side effects from birth control pills; another, that female sterilization requires removal of the ovaries. Consultation with subject matter specialists can nip such mistakes in the bud.

The team approach to materials production helps to minimize coordination and cooperation gaps. The resulting materials will usually reflect this by being coherent, coordinated, and accurate.

Pretesting Materials

Before mass producing materials and implementing them on a wide scale, it is valuable to test them on a small sample population. If there are confusions or errors they can be eliminated promptly and inexpensively. It is considerably cheaper to produce a few materials, test them, and insert corrections and revisions than to discover after mass production that corrections need to be made. In addition, poor or faulty materials may have a negative effect on participants. Errors in content may serve to inculcate or perpetuate misinformation. If the participants happen to know that a statement is wrong they will mistrust all the material. Materials that learners find uninteresting may cause them to drop out of programs and to be even more resistant to future educational efforts. For all of these reasons a pretest is recommended.

Designing a pretest requires, in effect, setting up a miniprogram. Conditions under which materials are tested must be as similar as possible to the conditions that will prevail in the program itself. The target group for the pretest should approximate the target group of the program in all characteristics, including age and sex,

background and occupations, interests and motivations. The teachers for the test program should have backgrounds similar to those of the instructors available for the entire program. Similarly, physical conditions should approximate those prevailing in the actual program situation. A set of materials designed for rural young adults employed in farming, for instance, tested on a class of adult learners from an urban area who are employed in industry will not provide adequate feedback, and, in fact, revisions inserted as a result of such a pretest might themselves be mistaken.

It is preferable to err on the negative than the positive side in pretesting. It is better, for instance, to use the least qualified teachers available instead of master teachers; material that a poorly qualified instructor can use without difficulty can certainly be used by better qualified personnel.

Crucial to the success of the pretest is a well-designed evaluation system. Each unit in the program needs to be evaluated carefully. Thus, the evaluation procedures designed for the program itself (see Chapter IX) needs to be meticulously copied and minutely detailed during the pretest. Here, too, overevaluation or collection of superfluous data is more desirable than underevaluation or data with gaps that cannot be filled in at a later stage.

Time factors may necessitate compromising the pretest procedures. A program designed to last two years and intended for implementation in six months cannot, of course, be pretested over a two-year period. Indeed, the pretest cannot last more than several months at most. Several approaches have been developed to accommodate time limitations.

The sampling pretest. Not all materials are tested but rather a stratified sample of units chosen at random from among the different levels of the program. In this manner at least one unit is tested at graduated level intervals and

indications as to the usefulness of the complete set of materials can be extrapolated.

2. *The multigroup pretest:* Several different test groups are chosen such that each approximates a projection of the target population at various stages of instruction. The materials are divided among the test groups so that there is total coverage. While the test group in this approach is of necessity large, all materials can be tested.

3. *The pilot project:* Pilot projects are basically compromises between small pretest groups and complete program implementation. One or several areas within the overall target area are selected for a pilot effort in which the entire program is administered. The participating group is, of course, much larger than that which would be assembled for a pretest. Certainty of the representative nature of this pilot group is ascertained through the choice of the sample. Indeed, the pilot project is a far more accurate simulation of the overall target situation than the test group. In a pilot project the spread of a program is gradual, and revisions can be made in the materials and methodologies at each stage. In cases in which materials being used are expensive to produce and revise, such as films, a pilot project is a more suitable means for testing than the more limited test group.

Following the testing of the materials, revisions can be made on the basis of an analysis of the evaluation data. Some units may need correction of rewriting; many may be proven adequate. Whatever the case may be, having the materials of a program pretested provides the planner with the confidence he needs to start the program on a large scale.

Audio-visual Aids

It is becoming increasingly recognized that written materials alone are less effective than written materials accompanied by audio-visual aids. Some educational ventures have even gone so far as to use only audio-visual materials.

Underlying the development of audio-visual aids is the notion that learning occurs most effectively through the stimulation of a maximum number of senses. For example, a program that requires the use of audio senses and the application of the visual senses to media other than the printed page, as well as the use of sight for reading and vocal cords for enunciating sentences, leads to more effective learning. This contention has been proven time and again in analyses of educational programs of all levels and types. Current educational theory wholeheartedly endorses a multi-sensory approach to educational materials.

The roster of audio-visual techniques is constantly expanding. The most common currently utilized aids are:

1. Audio
   a. Tape recordings
   b. Records
   c. Film soundtracks
2. Visual
   a. Charts
   b. Cards of many kinds
   c. Blackboards, flannel boards, magnetic boards
   d. Slides
   e. Filmstrips
   f. Films
3. Experimentation
   a. Laboratory equipment

b. Individualized learning aids of many kinds for a growing range of subject matter
c. Tools and raw materials
d. Games and simulations

These aids are generally used by means of a wide variety of media:

1. Paper, wood, and other raw materials readily available
2. Movie and slide projectors
3. Radio
4. Television
5. Tape recorders

Many of the aids require complicated or expensive machinery and cannot be used widely. Various forms of computer-aided instruction are extremely expensive and inappropriate to adult fundamental education programs in developing nations. Electricity is required for many of the techniques. Nevertheless, the range of materials that are available to a program planner is extensive.

First, a word of caution. The novelty of audio-visual aids can lead to situations where the aids themselves become ends rather than means to attain the program objectives. Aids need to be planned so they are appropriate to the program and are not incorporated simply because of their gimmick value. Furthermore, aids should be designed so that they can easily be utilized by teachers. The number of aids that are produced and never reach classrooms is alarming. Teachers need to be familiar with the use of the aids and competent to handle the machinery involved. Aids should not be planned as merely auxiliary instruments, but as vital parts of program materials.

Involvement of program participants in the production of aids is an educational technique that has been utilized with impressive effect in some programs. Production of a filmstrip or preparation of charts and cards by the learners can be effectively incorporated

into program design. This has the advantage of making the learner a participant in the production of his own learning materials and is of immense value in the learning process.

As long as a balance is maintained in the relationship of audio-visual aids to the program, taking into account available human and financial resources, aids can be of immeasurable importance in a program. Their design and production are an integral part of the materials production phase and should be undertaken simultaneously with the production of written materials.

Demonstration Activities

One form of valuable instructional aids, especially in an adult education framework, is demonstration activities. Since much of the subject matter in adult functional education programs relates to real life situations and is aimed at introducing change into these situations, actual demonstration as part of the program's curriculum is a most useful vehicle. Showing participants how the content of a particular topic relates to their own situation concretizes instruction and makes it less abstract. In addition, this avoids any possibility of suspicion.

A number of examples can illustrate the use of demonstrations:

A. Demonstrating a nutrition unit: For a unit in which meal preparation is the objective, program participants can actually plan, prepare, and cook a meal. If a class is sufficiently small in size it can convene in the kitchen of one of the participants for this purpose.
B. Demonstrating an agriculture unit: For a unit in which the objective is to get farmers to sow rice at constant intervals, program participants can hold a session in a field or yard and actually sow rice in the manner stipulated.

C. Demonstrating a family planning unit: A unit in which the objective is to get women to visit clinics could include a visit to such a clinic with a demonstration given by members of the staff. If planned enough ahead of time, role-playing could be worked into such a visit, with learners assuming the roles of both clinic personnel and patients.

The form and nature of demonstrations are a part of the design of program methodologies and materials and need to be accounted for in the materials production and curriculum development phase. Student participation is advisable, as one learns more through one's own actions than through that of others. Demonstrations are not a separate facet of a program; they are integral to the curriculum and should be designed accordingly.

The activities listed and suggestions made in this chapter are merely illustrative and not in any way exhaustive. The lengthiest and most arduous of the preparatory stages, that of curriculum development and materials production, is also the most exciting. It is here that the program planner shows his mettle and imprints his ideas on a program. Although there are numerous models that can be emulated, there is also ample room for experimentation and development of new materials and approaches. It is in this phase that all of the work previously undertaken in planning a program is culminated. It is the product of this phase that is the most visible feature of a program and source of much of a program's evaluation. Following the development of a curriculum and preparation of materials, the initial implementation phase begins. Up to this point the planner has worked with a close and limited group. Now he is armed with the tools required to expand the team involved in the effort.

VII. Recruitment and Training of Teachers

The recruitment and training of teachers is the final stage of the preparatory phases of program development. The teacher is the link between the program and the learners. However cogent the instructional methodologies and however good the curriculum design and materials, it is in the way a program's teachers utilize these that the effectiveness of a learning experience is determined. It is thus quite true that the teacher is the mainstay of any educational undertaking. In this chapter some of the considerations in the choice and training of teachers will be discussed.

Factors in Teacher Recruitment

Recruiting good teachers for any educational program can be a difficult process. This is frequently true in the extreme in the case of adult functional education. Sometimes the available teachers are entirely unsuited to the job. In one experimental literacy

project in Tanzania, over half of those teaching in the literacy program were themselves illiterate. Only sheer frustration could have prompted the planners of that program to employ such an obviously inadequate staff. Adult functional education program planners are often faced with situations where the recruitment of any personnel is a major problem, not to mention the availability of persons with the desired competencies; where the subject is as delicate, controversial, and personal as limiting family size, the task is formidable indeed.

Perhaps the most obvious constraint in the recruitment of teachers is the budget. In the allocation of funds a certain sum is usually designated as teachers' pay, and the sum is usually small. Most adult education classes are held in the evenings and are not the teachers' major employment. Wages earned through teaching in these classes are marginal. For an individual to consider employment in a program the financial incentive should be considered sufficiently significant to warrant accepting extra work.

Some adult programs have tried solving the problem by using teachers without pay. There are two general models of this approach:

A. Volunteers: The use of volunteer teachers is common in literacy programs. Frank Laubach's "Each-One-Teach-One" method was based on volunteer teachers and still functions effectively in many places.

   Some countries have made attempts to conscript "volunteers" by legislating that literate persons must instruct their illiterate countrymen or be subject to fines. "Volunteer" teachers are frequently unpredictable. Since they are not salaried they cannot be held accountable for poor attendance, slackness, or dropping out. It is hard to gather these teachers for training and even harder to supervise their work. Experience with this kind of "volunteer" teachers has been, almost universally, negative.

B. Teaching "Forces": Several countries have formed military corps of teachers in which conscripted military personnel serve out their military obligations as teachers. The best known of these is the Iranian Army of Knowledge. In Israel there is a Teachers Unit of fully qualified girls who serve as teachers in both primary schools and literacy programs in lieu of obligatory military service. That these girls are graduates of teacher training institutions and are closely knit in a pseudomilitary unit facilitates the specialized training and the ongoing supervision of their work. The Iranian and the Israeli models have both claimed great success in solving the problem of teacher recruitment.

Most planners will not be able to find volunteer teachers, nor will they have at their disposal fully formed teacher corps. They must find the funds, seek out personnel, and train them for their task.

Formal qualifications are important but not essential. It is reasonable to assume that a secondary school graduate is literate and has the basic skills necessary to become a teacher. The corollary of this is not, however, that a person who did not go to school beyond the primary level does *not* have the required basic skills and knowledge. Although the planner may not have the flexibility to choose instructors without regard to formal qualifications, it is wise to leave all doors open, especially at the outset of the recruitment process.

The recruitment process begins with the listing of the ideal criteria of teachers for the program. The qualities of this paragon of a teacher are carefully stated. This forms the basis for the next stage, during which priorities are determined. For example, assuming a planner wishes a teacher to be both formally qualified for teaching and something of an expert in family life planning, at the priority-setting stage he will determine which of these two characteristics is more important.

Tomes have been written about the characteristics of the ideal teacher. There is general agreement that two basic qualifications are the ability to teach and knowledge of the subject matter to be taught exceeding that presented in the program. This presents a severe problem for the planner of an adult literacy program in which family life planning is the core of the syllabus. The range of topics included in such a program is so broad that to demand of the teacher that he have prior knowledge in all aspects of the syllabus is a virtual impossibility. The teacher's willingness to learn the material as he instructs should be sufficient. It should be remembered that actually a teacher needs to be only one step ahead of his pupils in his familiarity with the material. In the case of adult functional literacy programs, specific subject matter knowledge is of less importance, as a rule, than an ability to master the methodology of instruction. The onus of presenting the material to the teacher can be assumed, to a large extent, by the materials themselves.

What makes a good teacher? An aptitude for teaching is not always gained in teacher training courses. Indeed, these have been known to certify people who are wholly unsuited for teaching. One speaks of a "teaching personality" and the characteristics of a "good" teacher. These are usually taken to be patience, better-than-average verbal abilities, a penchant for theatricals, and a "love of the profession." Whatever one's conception of a teaching personality is, it is clear that one exists and that not everybody is capable of becoming a teacher.

There is some argument as to whether teachers should be chosen from among the milieu in which they are eventually to work or from other areas. Some say that teachers drawn from the target population are more effective because they can communicate well with the participants and do not need to go through the often lengthy-and painful experience of gaining acceptance. Others argue the opposite: a person the participants know socially cannot teach

them effectively. Each situation will, no doubt, determine which of these approaches is more appropriate; the deciding factor must be the attitude of the target population.

Obviously, the availability of people for teaching will also determine to a large extent who is chosen. Desirable qualifications and the concept of the perfect teacher will very often have to be compromised with. The planner will usually find himself restricted by a dearth of the ideal type he is seeking.

Candidates should be interviewed before being chosen, if possible. Hiring on the basis of written credentials has often led to mistaken decisions. Although an interview is sometimes difficult and time-consuming, it will pay off in the long run.

A teacher can be likened to the axle on which a wheel turns. Defective axles cause wheels to turn with difficulty. In the end, it is the performance of the teachers that will determine to what degree the carefully prepared curricula and materials are transmitted to the program participants.

Primary-school Teachers as Adult Instructors: Pros and Cons

Many literacy programs use primary-school teachers for instructors. The logic behind this is that primary-school teachers are professional instructors and usually have formal qualifications and experience. And the teachers usually welcome supplementary income even if it is small.

Primary-school teachers often make good adult teachers; however, a good primary-school teacher is not automatically also a good adult instructor. Experience has shown that these teachers, who are anchored in primary education and often teach both types of student in the same room, have a tendency to think of their adult students as being like the youngsters they teach during the day. In practice, the primary-school teacher who conducts

himself in a classroom of adults as if it were no different from the third or fourth grade he has taught that morning can cause considerable harm. Adults as a rule resent being treated as if they were children and are hesitant to attend literacy programs if they think they might be humiliated. If they find they are treated this way they are likely to drop out.

As long as the individual primary-school teacher is able to differentiate between a classroom of children and the teaching methodologies he utilizes with children and a classroom of adults with its own methodologies, he is an apt candidate for teaching adults. The primary teacher who is set in his ways is a poor choice. The planner or his teacher recruiter must pick and choose and should not decide that all primary-school teachers can or cannot become good adult teachers.

Teacher Training Programs

Following the recruitment of teachers it is necessary to provide them with training. Typically in literacy programs crash courses at which a series of long lectures are delivered frontally is the format of the training. Following this short period of training, teachers are considered qualified and ready to begin teaching. The role of teacher training is basically considered as a framework within which prospective teachers are taught about the target population and the peculiarities of adult learning and familiarized with the instructional techniques and materials. In some cases a short period of observation and occasionally even the giving of a supervised trial lesson are included in the training period. These, however, are the exception rather than the rule, as time is limited and facilities for observation and the conduct of trial lessons are usually not available.

It should be accepted as axiomatic that a person cannot be "made" into a teacher merely by attending several days of

training. The objective of teacher training efforts is to acquaint the prospective program instructors with the curriculum, materials, and, to a degree, the target population. In addition, a teacher-training course should contribute to the formulation of positive attitudes towards the effort. These cannot always be taken for granted. Often teachers arrive at a training seminar with no particular attitudes towards the task they are undertaking. Too little attention is paid to this aspect of the training effort. The typical approach is to see the sessions as a simple form of vocational training in which teachers are taught the trade, so to speak.

Many of the assumptions regarding adult learning that were earlier applied to the design of the program itself are equally applicable to the design of teacher training. Teachers too are adults with learning problems. Their problems are similar in many respects to those of the program participants.

Teachers tend to teach in the way in which they themselves were taught. Because of this, it is valuable to use the same methods in training the teachers that they will be using in the field. This does not necessarily mean that the same materials must be used, but only that the methods and approach be the same. Whether or not the materials prepared for program participants are used for training teachers, the teachers should become thoroughly familiar with it.

The planner's main problem in organizing training programs is that of time limitation. He usually has no more than several weeks for all the preprogram training. His planning task thus becomes one of deciding what to include and what to exclude, which topics to emphasize and which to present in outline only. He should take into account several factors:

1. *Retention of material:* In any educational endeavor there is a point of diminishing returns, that point beyond which little is retained and instruction is of marginal value.

Overloading a program or supersaturating it with too much subject matter can reach and pass the point of diminishing returns. Time is short and the subject matter to be covered extensive. The resulting tendency to try to cram as much as possible in a relatively short time span is understandable. The planner should, however, recognize the point of diminishing returns and plan accordingly. It is better to have a small quantity of material well understood than a large quantity quickly forgotten.

2. *Format of sessions:* Although they are easier to organize, frontal presentations before large groups are not usually the most effective teaching format. Small group discussions create camaraderie, allow questions to emerge that otherwise would be stifled, and enhance retention. Just as dialogue is important in the program itself, so is it significant in the training of teachers. It is possible to combine elements of frontal presentation with the formation of discussion groups.

3. *Demonstrations:* Seeing is believing, and doing, understanding. Assuming that the inculcation of the instructional methodology is the point of teacher training, it is valuable to incorporate demonstrations of the methodology as part of the program. Although classes similar to those that will exist in the program itself are not always available for demonstration purposes, it is possible to use substitutes. The most effective substitute is the type in which the trainees simulate a classroom situation, playing the role of student and teacher alternately. Such role-playing is not frivolous; it is a legitimate and most effective training tool.

4. *Trainee involvement:* Throughout the training period it is advisable to involve trainees actively in their own training. Through workshops they can take part in the design of the

curriculum and the preparation of materials. Trainees instead of invited lecturers can prepare presentations. Extensive reading and the preparation of papers is also effective.

5. *Training in stages:* One effective model of teacher training utilizes the allotted time in a series of stages. Following a brief initial session (lasting perhaps several days) the trainees go to actual field situations for an additional period of time and then return for an analysis of their experiences.

So far only one aspect of the training of teachers has been discussed: the preprogram training sessions. A teacher's training is, however, a continuous process. Throughout his teaching career he is, in effect, being trained. Experience itself is a mode of training that should not be overlooked. In-service training has been institutionalized in many countries, and teachers are assembled periodically throughout their teaching careers to fortify and add to their initial training and to analyze their experiences. Short sessions of several days each, interspersed over a period of time and continuing throughout the duration of a program, are a valuable means of teacher training. If they gather teachers from different areas they are also occasions for experience-sharing. The training of a teacher should be seen as an integral process encompassing both the initial training stages and the in-service sessions.

Supervision

The supervision of teachers is a form of individualized training in which a supervisor or master teacher meets with a classroom teacher from time to time and observes his work. Although he often acts as though he were a kind of policeman, the supervisor

should be essentially a trainer of teachers. His contribution to a program is as a pedagogical contact for the field teacher.

Optimally supervisors should be appointed in a ratio to classroom instructional personnel such that the supervisory staff is able to spend a sufficient amount of time with teachers. The harried supervisor who visits a classroom only long enough to examine the class register and count heads is, unfortunately, a common sight. One personnel possibility is to employ members of the curriculum development and materials production team as supervisors once they have completed their initial task. Their familiarity with the materials coupled with the practical experience gained by teachers in the field can be valuable in the analysis of classroom teaching. As in the program itself and the teacher training sessions, dialogue is the most effective means of instruction. Discussing a teacher's work with him rather than delivering prescriptions can foster better communication between supervisor and supervised.

In this chapter only a few of the concerns relating to teachers have been discussed. Teacher training is essentially a program within a program. Surely the training of teachers is itself a form of adult education. Therefore, the design and preparation of teacher training programs should not differ substantially from those of the larger program. The same stages are involved, and the planning of the training aspects of a program should be as carefully done as the planning and development of the entire program.

VIII. Program Administration

In the development of a program for functional literacy and family life planning the adoption of an administrative framework is a fundamental and early planning phase. In most educational undertakings this administrative framework is predetermined, but in adult functional education programs the planner usually has a fair amount of latitude to develop and incorporate an administrative structure.

Administration implies several things. On the one hand it is the framework that accompanies a program and facilitates its functioning by dealing with administrative matters, as opposed to pedagogical issues. Distributing materials and administering the payroll are samples of such administrative activities. On the other hand, administration in education is concerned with the determination of learning frameworks. In primary and secondary schooling, for example, the framework is the school in its physical aspect stratified by classes in which pupils sit in rows. A one-room nongraded school is an alternative administrative model. Similarly,

the stratification of a school by classes determined by age or by the development of individualized instructional programs into which the class is broken up reflect administrative decisions. In the preceding chapters the word "classroom" has been used many times, implying that the model of administration is a frontal classroom one similar to the lecture or formal classroom format common in formal education institutions. The term, however, was used rather loosely pending the discussion of administration in this chapter.

The concern of this chapter is the second aspect of administration--the determination of the instructional setting of a program.

Administration in Literacy Programs

The administrative frameworks and models utilized by the typical literacy program are quite simple. Classes are formed in available public space, usually in the evenings, and are conducted frontally. Primary-school facilities are often used since they are available during the evenings and are considered appropriate for any instruction. Program participants are divided into classes of varying size and taught in a frontal situation in which the teacher delivers a lesson. Where school classrooms are not available, other public facilities such as churches, clubs, and community centers are used.

On the surface, this approach seems to be a conservative type of administrative model but one that is appropriate to a learning situation. In practice, however, one can find many faults in it. Use of a building designed as a primary school for adult education usually means that adults must use small-scaled furniture in which they are uncomfortable. In many countries, primary schools are not wired for electricity since they were planned for use only in

the daytime, when sunlight is available. In many cases electricity is not available anywhere in the area. Consequently, lighting in the classrooms is poor, and learners have trouble seeing their materials. These physical surroundings, uncomfortable and unsuitable for effective education, are often the cause of dropout. Sitting on small-scaled furniture has the added disadvantage of creating a feeling among participants that they are being treated like children, a feeling that is generally resented.

Quite apart from the physical facilities, the use of a frontal learning situation in which learners sit in rows facing a blackboard while the teacher performs further inhibits learning. Considered outmoded in many progressive schools even at the elementary level, this form of classroom organization is certainly not conducive to a dialogical learning situation for adults. The entire focus of attention is towards the front of the classroom where a teacher and blackboard are usually the only "sights." In this formation no relationship exists among the learners themselves.

Group size in the traditional format is often of no particular consequence. As many people as come are admitted into a class. The sole factor determining the size of the class is the number of seats available. In programs in which seating is on the floor, the amount of floor space is the determining factor. The fact that learning is more effective when conducted in small groups is rarely taken into account. Surely, also, real dialogue can occur only in a small group situation.

Freire has aptly labeled this form of education "banking education." The pupil is conceived of as an empty receptacle into which the teacher pours his knowledge much the way money is deposited in a bank. The high attrition in literacy programs is at least partly traceable to the administrative features prevailing in the traditional programs.

Alternative Administrative Models

Why must adult education be wedded to a classroom or public hall? Indeed, many alternative places are available for instruction. Some possibilities are:

1. *Homes of learners:* Some programs have effectively used the homes of participants as places in which to hold sessions. A few neighbors assemble in the home of one person, and the teachers instruct small groups in one of the available corners. Often a kitchen table serves as a place for instruction. Sometimes known as "home circles," such a group is necessarily small. The fact that a familiar surrounding is used may serve to promote confidence in the participants. A literacy program conducted in Israel was for some time based entirely on such "home circles." An added feature of this approach is that classes can be convened at any time of day; they are not limited to those hours when classrooms are available. This method is particularly suited for programs for women who are not employed outside their homes or fields.

2. *Places of work:* A similar approach is to conduct classes at places of work. This is particularly suited to programs for men. Breaks during farming hours can be taken advantage of, as can off hours in industry. Again, the physical surroundings are familiar, and the whole situation is geared for dialogue to take place. Some variations of this approach are to use storefronts and public meeting places such as bars, cafeterias, shopping centers, and marketplaces.

Each of these settings, albeit difficult to organize and supervise, may be more conducive to adult learning than the traditional one. In all of these models the size of the single group should be kept in the range of four to eight persons. More than that is unwieldy and does not permit dialogue. Also, individualized attention is easier in

small learning groups. One might argue that the shortage of instructional personnel necessitates convening large groups. The counterargument, however, is that it is better to sacrifice the length of the instructional period than its size; it is better to organize several small groups each with a short amount of time alloted to it than one large group taking all the available time. The decreased time spent in session is more than compensated for by the time spent being more efficient and conducive to learning.

An administrative approach that has been proposed by the author on several occasions is one that entails the setting up of an adult learning center designed to meet specific needs of adult learners. The center is a building resembling local dwellings and contains a room (or rooms) to be used for instruction which is small, with seating either around a table or on individual chairs placed in a circle; a supervised children's playroom, so that participating mothers can bring their preschool-age children along and have them watched during the instructional session; a kitchen furnished in a fashion similar to the one in a typical home, in which women can prepare food either as a form of reinforcement of some of the units in the curriculum or for their own purposes, which is a means of motivating them to attend; a larger room that can be utilized for larger meetings, lectures, or recreational activities; and possibly a workshop furnished with various tools, in which men can make things either to reinforce some of the topics in the curriculum or can use the tools for their own purposes, which is a means of motivating them to attend. In a sense, it is a community center for adults. It need not be an elaborate structure; simplicity can be its virtue.

There is much room for experimentation with administrative models. Clearly those utilized in traditional programs are not effective and are in need of change. The few models sketched above are only examples of the types of administrative structures that are specifically designed for use by adults. While they may be

more difficult to organize and administer than traditional models, they are also more likely to provide productive learning environments and thus prove to be less expensive and more efficient in the long run.

It is incumbent upon the program planner to plan for the administrative aspects of a program in the course of developing a program. There is a distinct relationship between this type of administrative operation and the pedagogical aspect of a program. Indeed, the two spheres are interdependent and should be planned for simultaneously.

IX. Evaluation for Family Life Planning Education Projects

Evaluation is one of the least developed aspects of education; in many quarters there is a lack of understanding about its basic functions. All too often educators consider evaluation to be a means of grading their own work and seek to undermine it. This lack of perspective about the purposes of evaluation is paralleled by an extreme poverty of evaluative tools. Evaluators often approach their tasks without having an adequate notion of how they should proceed. Nonetheless, it is increasingly evident that evaluation is an integral part of the educational enterprise, and educators are more and more aware of its potential benefits. One consequence of this attitude is the intensified efforts to perfect evaluative tools. In this chapter some of the problems of evaluation will be discussed, and some possible approaches to the evaluation of adult functional education for family life planning described.

Evaluation serves two distinct purposes. First, through the evaluation of an educational program one can tell whether it has attained its objectives, or to what extent it has been successful. In projects of functional education for family life planning, which are a new approach in education, this function is of particular importance. There are many questions in need of answers: Do such programs actually contribute to an ultimate reduction of fertility rates? Do they encourage more people to visit family planning clinics? Are such programs a more effective means for teaching reading and writing? For the dissemination of attitudes and information relating to family planning than other media (e.g., mass communications, community development, programs sponsored by clinics, or adult literacy programs with no special family planning content)? What aspect of the programs can success be attributed to? What aspects of the programs did not succeed in attaining their objectives? Which instructional methods proved more successful? Why? All these questions and many others can be answered through an appropriate evaluation.

The second function of evaluation is to serve as a feedback mechanism for the program planner. Although in theory the design of the various components of a program are well suited for the purposes for which they are intended, whether they really are or not can only be ascertained on the basis of feedback from the actual functioning of a program. Adequate feedback is necessary at all times so that the planner can have an indication of the efficacy of the design. If revisions are needed, they can be made while the program is still in operation.

Although evaluation serves these two seemingly different purposes, two evaluation studies are not needed. Instead, one study can be constructed and designed to accommodate both purposes. The different functions are served by different utilizations of the data resulting from the evaluation rather than by the design of the evaluation. One condition, however, must be met if a

study is to apply to both functions: evaluation must be instituted at the inception of a program and be ongoing. Otherwise the information needed for revision will not be forthcoming at a stage when it can be used.

In many cases evaluation studies are not started until the program is over. Experience has shown that this procedure has serious drawbacks. Quite apart from the fact that ongoing feedback cannot be obtained from an after-the-fact study, such an evaluation is hampered by not having adequate information as to the status and characteristics of the target population prior to the program. Consequently, it would be extremely difficult to compare the achievements of program participants with the attitudes and knowledge they had before enrolling. Other aspects of evaluation might also suffer. If, for example, one wishes to include a cost-benefit analysis in the evaluation, lack of accurate data on enrollment and attendance could bias the results considerably. The following illustration points out some of the benefits of an ongoing evaluation as opposed to a post factum one:

> Two countries initiated adult functional literacy for family life planning programs. Country A decided to incorporate an evaluation into the program from its beginning while Country B set aside funds for an evaluation of the program upon its termination. Both countries were primarily interested in finding out what the effects of the programs were on family planning and what the cost per student was. The cost per student was particularly important because the ultimate fate of the programs would be determined largely on the basis of costs.
>
> Country A began its program with an enrollment of 1,000 participants. After the first month the program planners received a warning signal in the form of information indicating that 200 participants had virtually dropped out and were attending classes sporadically if at all. On close

examination of the information coming out of the classes it was determined that the participants were frustrated by the rapidity of the pace of the reading instruction. The teachers were immediately informed that they must slow up the instructional process. Dropout ceased. At the fifth month of the program, after an intensified unit on family planning and the role of the family planning clinic, enrollment suddenly dropped sharply. Four hundred participants stopped attending classes. It was found, however, that 360 (90 per cent) of them had visited the clinic and had adopted various contraceptives upon advice of the doctors there. A reading examination was administered to the dropouts at the clinic and it was found that all of the former program attendees were able to read a text geared to a fifth-grade reading level. At the end of the program, one month later, 90 per cent of the remaining participants were able to pass a similar examination, and 80 per cent visited the clinic. The program planners concluded that the program had attained its objectives for 85 per cent of the original enrollees. People both visited the clinic and were able to read at a fifth-grade level. The dropout at the end of the fifth month was attributed to an early successful completion rather than to a program failure. When costing the program it was found that it cost $50 for each person who attained a fifth-grade reading ability and visited the clinic. When these results were presented to the Minister of Education, he was impressed and re-funded the program for another year on a greatly expanded scale.

Country B also began its program with an enrollment of 1,000. The evaluation study was launched at the end of the sixth month, when the program was completed. It was found that of the original 1,000 participants only 100 had stayed in the program until the end. Eighty-five of these people had

visited the local family planning clinic, and 90 of them had passed an examination geared to a fifth-grade reading level. Some of the initial participants were sought out and questioned about why they had left the classes. Most reported that they found the classes too difficult, the pace of instruction too rapid, and the material uninteresting. None of those interviewed attended the clinic, and many did not even know that it existed. They had left the program before the unit on the clinic and family planning had been reached. The program planner was chagrined to discover that each participant who had completed the program and attended the clinic had cost the program $500. When a request was forwarded to the Minister of Education to continue the program for an additional year it was angrily rejected.

Obviously Country B could have avoided many of its problems had it instituted evaluation procedures from the beginning. The program planner would have received an indication that all was not well and would have been able to alter the curriculum. By keeping tabs on all participants he might have found that some of the dropouts did succeed in learning about the clinics and had, in fact, visited them. The cost-benefit analysis may have been less biased. While this example is perhaps somewhat exaggerated, it points out the benefits of starting evaluation procedures early. Two conclusions can be drawn: first, evaluation must be designed and undertaken from the beginning of a program; second, evaluation is an ongoing effort that should closely follow the course of a program.

Stages and Procedures in Evaluation

The specific forms and procedures of evaluation may differ widely. There are, however, a number of stages through which

most evaluation studies must pass and which are recognized as being standard procedure.

The first such stage is often called the "benchmark" stage. It takes place before material and curriculum design begins and is aimed at gathering information on potential program participants in order to determine some of their relevant characteristics. In Chapter III this aspect of evaluation is discussed in detail. Here it need only be stressed that the benchmark, or preprogram, survey serves an important evaluative function by providing a reference point aginst which the results of a program can be compared. For example, if it is found that graduates of a particular program are able to describe the functions of a family planning clinic with a fair amount of detail, it cannot be known if this is a result of the program unless it is known from the benchmark survey that the participants had previously been ignorant of the existence or purpose of the clinics. Material collected during the benchmark survey would, therefore, serve as the basis for all subsequent stages in evaluation.

The second stage in evaluation is the determination of study groups. This occurs after a program has been launched and the participants enrolled. In each case the participants are an experimental group. However, since one is interested in how the program participants fare in comparison with other people it is necessary to establish control groups. The concept of a "control group" is that the group, which will eventually be compared with the experimental group, is chosen on the basis of having some of the characteristics of the experimental group, but only the type of characteristic that can be observed independently in relation to the program. In this way the evaluation reflects more accurately and specifically the effects of the program and not any other characteristic that is not inherent in the experimental program.

The simplest type of control group is made up of people who are not participating in the program. Choosing such a group may

not be as simple as it sounds. For instance, if a group of nonparticipants is chosen from the same villages as the participants, it is most likely that they will not function as an accurate control because the program will have some effect on the nonparticipants through discussions with participants. In one project of functional education for family life planning the control classes had to close down when the participants learned of the interest being generated in the experimental classes. Therefore, people should be chosen who will have no contact with program participants.

In some programs several control groups might be chosen. One would consist of people who do not participate in any program and have no access to any means of mass communications. A second might consist of people who participate in a regular literacy program that does not have a particular family planning content. A third group might consist of people who have access to radios and listen to broadcasts on family planning. It seems, indeed, that the larger the number of control groups, the more accurate the assessment of the effects of the program will be.

It is also clear that the various groups—experimental and control—need to be matched. Matching in this respect means ensuring that the basic characteristics of each of the groups and their participants are similar. Groups can, for example, be matched for age and sex or for occupation and economic status. As a rule the more perfect the match between the groups, the more accurate the results will be. Since the evaluation is to be ongoing, it is necessary to choose the control groups at the same time as the experimental group and to follow the development of the controls as closely as that of the participants in the experimental group.

Ongoing program evaluation takes place on various levels. For convenience we shall refer here to "minimal" and "maximal" evaluation. At a minimal level, information pertaining to attendance is gathered throughout a program's operation. It is

extremely important to know what the degree of participation is and what the causes of any attrition are. For example, if upon completion of a program it is found that all of the graduates had attended family planning clinics one might be led to draw an overly optimistic conclusion that the program had been 100 per cent successful. This conclusion would certainly be dampened by the information that the program had suffered an 80 per cent dropout rate and only 20 out of every 100 participants had, in fact, attended a family planning clinic. Similarly, it is most instructive to discover any changes in family planning behavior among the members of the control groups. If it is found that in a particular region as many members of the control groups as of the experimental group visited clinics, it would certainly be difficult to explain the visits on the basis of the experimental program.

One would then search for other factors that led to the clinic visits. One essential aid to meaningful evaluation is accurate attendance files. To help ensure authenticity of these figures, teachers must understand the reasons for evaluation and the importance of precise record-keeping. Further, they should be assured that low attendance will not in any way compromise their incomes. Spot checking of files might also be a way to increase accuracy. Teachers could also be used to conduct interviews of the control groups.

A maximal ongoing evaluation includes periodic tests and interviews, the object of which is to determine the status of achievements at each phase of the program. Any changes in knowledge, attitudes, and practices can be monitored in this fashion. Of course, parallel interviews and tests must be conducted among the controls. The performance of the teachers can be monitored, and their particular effect upon achievement ascertained. Clinic staff can be called upon for information on visits of participants in the experimental program or of the controls. The reasons leading to the visits can then be analyzed to determine to

what extent they were caused by the program or were the results of other factors. Similarly, the adoption of contraceptives by individuals can be monitored and assessed in relation to the contributing factors. Part of the maximal plan consists of a careful and detailed evaluation of the various units of the curriculum and the instructional methodologies employed.

Finally, after a period of time has elapsed, a retention survey can also be included in the study. This would focus on the extent to which material taught in the program has been retained and the degree to which former participants utilize the various skills and knowledge gained in the program. At the same time it would be possible to examine to what extent the program actually affected the reduction of fertility rates. A sufficient period of time must, of course, be allowed to elapse before these can meaningfully be examined.

Interviewing is the most common method for such investigations. For interviews with the various people to be comparable, a single questionnaire must be designed that allows for as many answers as possible to the same questions. Therefore, the design of the questionnaire assumes a major significance in the evaluation process. Coupled with the questionnaire is the act of interviewing. It is not sufficient to sit with a person and run down a list of questions. In many cases questions need to be explained or answers need to be drawn out. There must be a certain rapport between the interviewer and the interviewee if the answers are to be accurate. It is necessary to choose interviewers with great care and to train them carefully in the art of interviewing. While it is certainly preferable to utilize the same interviewers for all phases of the study, this is not always possible. When different groups of interviewers are used, each group must be chosen and trained appropriately.

The information gathered through the various interviews must be analyzed if it is to be useful. The answers to the questionnaires

must be collated and then correlated in order to account for all possible contingencies. It is clear that many people need to be involved in the process of evaluation: field workers (the interviewers), questionnaire writers, and analysts.

Another factor influencing analysis results is the size of the population studied. Obviously, the more people questioned the more accurate the results will be. Unfortunately, it is not always possible to include all program participants in an evaluation study because the costs would be too high. In most studies there is a need to resort to a procedure known as sampling. A sample of the entire population that most closely approximates the characteristics of the entire group is chosen for purposes of the study. A sample can be chosen in two ways depending on the size of the group. The first is to decide on a certain percentage, usually 10 per cent, of the entire group. If a group is small such a procedure is not advisable because too many items might be excluded. On the other hand, if a group is large a 10 per cent sample might be too much. The second procedure takes this into account and provides for choosing the certain size of group that is adequate for study purposes. This size needs to be established for each case individually and depends on the characteristics of the group. Sample sizes ranging between 200 and 400 are most common.

Choosing a sample is not only a question of getting the correct numbers of people but also of selecting the group in such a way that all subgroups are adequately represented. For example, if a certain program has 2,000 participants ranging in age from 18 to 60 divided equally by sex, a sample of 250 women all between the ages of 18 and 20 would not be representative even though it is of the right size. In the example given, proportionate representation should be provided for both sex and age distribution. Similarly, other factors should be taken into account, such as marital status, prior educational experience, family size, occupation, economic status, and exposure to mass media.

The foregoing pages have outlined several features of evaluation that are recommended for all studies. Since different studies may seek to research different aspects of programs and would therefore have different situations to study, a uniform tool of evaluation cannot be recommended. The exact structure of questionnaires, study groups, stages, and analysis plans must be constructed for each case individually. Whether or not a particular program intends to incorporate evaluation into the master plan, it is strongly recommended that all programs institute benchmark data collection so that information will be available to researchers if it is decided to embark upon an evaluation study after a program is in progress. Furthermore, it is strongly recommended that all programs seriously consider the incorporation of evaluation into the early planning stages so that this most important aspect of an educational endeavor is given adequate coverage. Evaluation is a means toward the development of better educational programs, and programs that include it will reap benefits in future efforts.

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